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SCORE
                                                                                                                                                                                                                                                                                                                                                                 0 H O Z H C O H 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73 O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query sequence being compared: US-10-081-644-2 Number of sequences searched: Number of scores above cutoff:
A 100% identical
                                                               Number of residues:
Number of sequences searched:
Number of scores above cutoff:
                                                                                                                                                                                                             Gap size penalty
Cutoff score
                                                                                                                                                                                                                                      Similarity matrix shold level of sim. itch penalty penalty
                    The scores below are sorted by initial score. Significance is calculated based on initial s
                                                                                                                                                          Scores:
                                                                                                                                                                                                     Randomization group
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Results file seg2-4-6-8.res
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Release 5.4
                                                                                                                         Times:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Results of the initial comparison of US-10-081-644-2 (1-370) with: File: US10081644.pep
sequence to the
                                                                                                            CPU
00:00:00.00
                                                                                                                                                                                                                                                             PAM-150
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                                                                                                                                               Mean
185
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                                                                                                                                                                                 SEARCH STATISTICS
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query sequence was
                      on initial score
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6
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (1-370)
                                                                                                             Total Elapsed 00:00:00:00.00
                                                                                                                                               Standard Deviation 143.59
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 found:
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370
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Sequence Name

Init. Opt. Length Score Score

Sig. Frame

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Initial Score = Residue Identity = Gaps =
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                                                                                                                     2. US-10-081-644-2 (1-370)
US-10-081-644-4 Sequence 4, Application US/10081644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence Name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-081-644-2 (1-370)
US-10-081-644-2 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2. US-10-081-644-4 Sequence 4, Application 3. US-10-081-644-8 Sequence 8, Application 4. US-10-081-644-6 Sequence 6, Application
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. US-10-081-644-2 Sequence 2, Application US
                                                                                                                                                                                                          80 90 100 110 120 130 KLGPNASTD-LKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKS--NLTHSTADEISEGPVKNFESAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Description
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                                                                                    5 24
5 3 48 55
3 48 55
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                                                                                    Optimized Score = 291
Matches = 201
Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Optimized Score = 370
Matches = 370
Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2, Application US/10081644
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                                                                                            291 Significance = 201 Mismatches =
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368
377
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Score
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237
237
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Score
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1 0.42 0
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7 0.36 0
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0
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136
33
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Initial Score = Residue Identity = Gaps =
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105-10-081-644-8 Sequence 8 Application US/10081644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360 370
EGKNKNVKYVARL
                                                                                                                                                                                                                                                                                                         80 90 100 110 120 130 140
GPNA-STDLKVGDTGFGFVHGASQTDFKNGAFAEYARVYPPLFYKS--NLTHSTADEISEGFVKNFESAASL
IGKNSGEKLVAVLN
360 X
                                                                 YGADQLFDYHDIDVVEQIKHKYNNISYLVDCVANQNTLQQVYKCAADKQDATVVELTNLTEENVKKENRRQN 250 270 280 280
                                                                                                                                                                       YGADDVFDYHDAGVIEQIKSKYPNLQHVIDAVGSEDSIPEAYKVTADSLPATLLEVVPMTIESIPEEIRKDN
                                                                                                                                                                                                                                                                                   GPAVDPKDFSIGDYIYGFIHGSSVRFPSNGAFAEYSAISTVVAYKSPNELKFLGEDVLPAGPVRSLEGAATI
70 80 90 100 110 120 130
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370 X
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IKEGKNKNVKYVARL
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10 120 130 140
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52%
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          170
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                                                                                                                                                                                                                                                                                                                                                                                                                                        283 Significance = 194 Mismatches =
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4 US-10-081-644-2/(1-370)

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US-10-081-644-6 Sequence 6, Application US/10081644
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237 Optimized Score = 287
51% Matches = 193
· 3 Conservative Substitutions

287 Significance = 193 Mismatches =

0.36 145 32

KDNVKIDITLLYRASGQEILLGATRFPASPEYHEATVKFVKFINPHLNNGDIHHMNIKVFSNGLDDVPALTE

DÍKYGKNSGEKLVÁVÍN 370 X GIKEGKNKNVKYVARL

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AAATCAATGATGGTGAAATCCACCACCACCAGTGAAAGTTTACAAGAACGGGTTAGATGATATCCCACAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 750 | 750 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 760 
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900 940 850 860 870 880 890 900 GAAGCACCGTGAACCAAACCGAAACCTCCAACCTTCAAGTCAGTACTAGCATTTGGTCCAACTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AATTGTTGAAAGAGTACGGTGCAGATGAACTTTTTGACTACCACGATGCTGACGTTATCGAACAGATAAAAA
TACTTGATGATATTÀAGCACÓGGAGGAATTCTGGCGÁAAAGTTGGTTGGCCGTCTTGAAATAATCTAGACTG
1080 1090 1100 1110 1120 1130 1140
                                                                                                                                                                                                           aAGACAGGAGGCAAAACGTÁGTÁTTÍGAAGGAACCCTTÍTATÁTTÍGÁTAGGAGGTÁACGACGTÉCCATTÍG
60 870 880 890 900 910 920 930
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780 790 810 820 830 840 CAAAGGTGGATAAACCCTGGC-----ATATTCAGCAAATGCAACCATTTTTAGGATCTGTTTGGGAAGCACC
                                                                                                          GGAGAGCTGCACCGAATTCGTCAAGTTCATCCAAGATTAGTGGGCAAGATTAGTCGGCAAGATTACCAG
950 960 970 980 1000 1010
                                                                                                                                                                         TTCGAAGTTCTTCACAGGGCCTTCAGAAATTTCATCAGCAGTTGAGTGA---GTTAAGTTACTCTTGTAAAA
                                                                                                                                                                                                                                                                                            AAGACTGTATTCAATAGGCGGCCATGAAGTACCATTTGGTGGCATTACTTTCCCTGCTGACCCAGAAGC-CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40
                                                                                                                                                                                                                                                                                                                               CATTTTGAGCCCAAGTGATGACAACAACTAACACCAGCAGTTGTCAACGAAACTGGCAATGATGCAGCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                 CGAATTAACTAATTTGACAGAAAAACGTCAAAAAGGAGAATAGGAGGCAAAATGTCACTATTGACAGAAC
800 810 820 830 840 850 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                380 390 400 410 CCACAGGTTTGGATACTTCGA-----TTTGATCTGCTCAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCCATCTTATTATGGGGCGGTGCAACTGCAGTAGGTCAGTCGATCCAATTAGCCAATAAATTGGAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        440 450 450 460 450 ACGCCTGCATCATGATAAGACTTTAAAAGCTTTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCACTTCTAATAATGTGGCAGGTAGACTATCTGCTGTGACTTTATAGGCCTCGGGGATACTATCTTCGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCTGGCTTGGTGTTGACCTATAACTTGGGCTTGAACCTGAAGTGGGAGCCATCAACCCCACAAAGAAACGG
440 450 460 470 480 490 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          40 250 280 290 300 AAAGTAATATCTTTAACATTATCTTTCTGATTTCTCAG-GAATGCTTTCAATGGTCATTGGAA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGAAGATGTTCTACCTGCCGGCCCTGTCAGGTCTTTGGAAGGGGCAGCCACTATCCCAGTGTCACTGACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      170
170 180 190 200 210 220 220 230 TCATICAȚI GACTAGAT TOTI GACCAGAT GACATACAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCTTTTGCTGAATATTTCGCTATTTCAACTGTGGCTGCCTACAAATGTGACTCAAATTTTTGGG
300 310 320 330 340 350
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTCACCAAGATCATTGTTGTGGCTTCTCGGAAACACCGAAAAACTGTTGAAAGAATATGGTGCTGATCAACT 590 600 610 620 630 640 650
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ACATTTTGTTTTACCTTCATTATACCTTCAGTGAGAGCTGGGACATCATCTAAGCCGTTGCTGAAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            atttgattaccatgatattgacgtggtagaacaaattaaaccacaagtacaacaatatctcgtatttagtcga
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Initial Score = Residue Identity = Gaps =
                                                        US-10-081-644-1' (1-1113)
US-10-081-644-3 Sequence 3, Application US/10081644 /
                                                                                                                                                                                                                                                        TGCTTATTCAATTGGCAAAAAACTAAACGGTTTCAGCAAGATCATCGTCGTTGCTTCTCGTAAACATGAAAC 580 590 600 610 620 630 640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGATTGGAAACATATTGATTTCAAATTGG-TCCTCAAGGTGCCCTCTTAGGCTGTGATGCAGCCGACCAA
                                                                                                                               CATGGAAGCCCTCCAAAGCGCAAAGAGATCAACCCATCTTATTTTGGGGTGGTGCCACTGCTGTTGGCCAGA
                                                                                                                                                                          CTTTAAAAGCTTTTCATGCTTTTTAGAAGCAACAGTTACAATCTTAGTATAAGCATTGATATGTTTGGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGTGCTTCAGTGAGGTTCCCCCTCAAACGGTGCCTTTGCTGAGTACTCTGCCATTTCATCCGAGACTGCTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           270 280 390 310 320 320 TCTGATTCTTCAGGAATGCTATCT---
TCTGATTTCTTCAGGAATGCTTTCAATGGTCATTGGAACCACTCTAATAATGTGGCAGGTAGACTATCT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             140 150 200 CGATTTAACTTAACTGTGGCTTCATGATATTCTGGACTAGCAGAAATCTTGTTGCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGGACATTCCAATTCCTGAATTAGAAGGATTTGTTCTAATTAAGACTGTCGCCGGTTACCCCTA
80 90 100 110 120 130 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGGGACATC-ATCTAAGCCGTTGCTGAAAACTTTAATATTCATATGATGGATATCACCGTTGTTAAGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGÄÄAÄÄCTCGTTGCCGTATTAAACTÄÄTCTÄGÄÄAC 1090 1100 1110 1120 X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAAGGGTCTATAAGAACGGGCTTTACGATGTTCCTCGTATCCTGGAAGACATTAAAATCGGTAAGAACTCTG 1020 1030 1040 1050 1060 1070 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAAACATGTCTGCCTCGATTCCAGAAACCATGAAAGCCGTTGTCATTGAAAATGGCAAGGCTGTAGTCAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCAGCAATGTCACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---GCTGTGACTTTATAGGCCTCGGGGATACTATCTTCGCTTCCCACAGCGTCAATAACATGTTGCAGGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTATAACCTGGCAACATACTTAACATTTTTGTTTTTACCTTCTTTTATACCTTCAGTGAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Optimized Score = Matches =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative Substitutions
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          330
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414 Mismatches = 693
tions = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          340
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920 930 940 950 960 960 970 980 970 980 970 980 970 980 970 980 970 980 970 980 970 980 970 980 970 980 970 980 970 980 970 980 970 980 970 980
                                                                                                                                                                                                                                                                                                                                                                                                                           due Identity =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-081-644-1' (1-1113)
US-10-081-644-5 Sequence 5, Application US/10081644)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAAAGCTTTTAAAGTCTTATGGTGCTGATGATGTCTTTGACTATCATGATGCAGGCGTTATTGAGCAGATC
790 800 810 820
AAA-CCCTGGCATATTCAGCAAATGCACCATTTTTAGGATCTGT-----TTGGGAAGCACCGTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCATGATATTCTGGACTAGCAGGAAATCTTGTTGCACCCAATAG--AATTTCTTGACCAGATGCACGATACA
                                                                                                         ACTITICIATOGGTGATTATATTTATGGGTTCATTCACGGATCTTCCGTAAGGTTTCCTTTCCAATGGTGCTT
                                                                                                                                                                                                                                                      ACATTTTTGTTTTACCTTCTTTTATACCTTCAGTGAGAGCTGGGACATCATCTAAGCCGTTGCTGAAAACT
                                                                                                                                                                                                                                                                                                                     CTCAAGGATCTATTCTGGGATGTGATGCTGGCCGAAATTGTCAAATTGGGCCCAGCTGTCAAATCCTAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCTCACTGAAGGTATAAAAGAAGGTAAAAAACAAAAATGTTAAGTATGTTGCCAGGTTATAA
1060 1070 1080 1090 1100 1110 X
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TTTAACAACAGCTTTGTCACCTTCAATGACGGCTTTTTGAGTGGTTGGAACTGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACCTTAACAACGGTGATATCCATCAT-ATGAATATTAAAGTTTTCAGCAACGGCTTAGATGATGTCCCCAGC 990 1000 1010 1020 1030 1040 1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAAGTCACAGCAGATAGTCTACCTGCAACATTAATTAGAAGTGGTTCCAATGACCATTGAAAGCATTCCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --CAAGTGATGACACAAACTAACACCAGCAGTTGTCAACGAAACTGGCAATGATGCAGCAGATTCGAAGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                          Matches = 332
Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Optimized Score =
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                                                                          210
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332 Mismatches = 567
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TTATAACCTGGCAACATACTTA
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X 10 20 TTATAACCTGGCAACATACTTA

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Initial Score = Residue Identity = Gans =
                                                                               3. US-10-081-644-1' (1-1113)
US-10-081-644-7 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAATTAAÁAAÁÍTTÍGAĆAÓAAGÁAÁACÓTCAAAÁAAGAGAGAACAGÓAÓAÓAÁÁACÓTTÍACTÁTTGÁCATÁATA
820 830 840 850 860 870 880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGCTTGGTGTTGACCTTATAACTTGGGCTTGGACCTGAAGTGGGAGCCATCAACCCCACAAAGAAAAGGCCC 470 480 490 500 510 520 530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGCAGTTGTCAACGAAACTGGCAATGATGCAGCAGATTCGAAGTT---CTTCACAGGGCCTTCAGAAATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACCAAGATCATTGTTGTGCTTCTCGGAAGCACGAAAAAACTTTTG--AAAGAATATGGTGCTTGAATTA
610 620 630 640 650 660 670
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                                                                                                                                                                                                                            GTGAAAACTCGTTGCCGTATTAAACTAA
                                                                                                                                                                                                                                                                                                                                                       TÄÄGGGTCTÄTAAGAÄCGGGCTTTGTGATGTTCCTCATATCCTÄÄÄAAGACÄTCAAATÄTGGTAÄGAACTCTG
1040 1050 1060 1070 1080 1090 1100
                                                                                                                                                                                                                                                                                                                                                                                              810 820 830 840 850 860 870
AAATGCACCATTTTAGGATCTGTTTGGGAAGCACCGTGAACCAAAACCGAAACCGGTATCTCCAACCTTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTGATTÁÍTĆÁTGÁTATTGÁCGTAGAÁCÁAAATÍAAAĆÁCAAGTACAÁCÁATATCTCGTATTTÁGTCGÁC
680 690 700 710 720 730 740
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750 760 770 780 780 800 810
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                                                                                  Sequence 7, Application US/10081644
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                                                                                                                                                                                                                                                                                                              900
Optimized Score = 296
Matches = 359
Conservative Substitutions
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                     296 Significance = 359 Mismatches =
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Similarity matrix
Mismatch penalty
Gap penalty
Fize penalty
ff score
Ramcomization group SCORE O 0 H O Z H C O H 0 > 0 < o | o | ntelliGenetics > 0 < Number of residues: Number of sequences searched: Number of scores above cutoff: Query sequence being compared:US-10-081-644-1' (1-1113)
Number of sequences searched: 23
Number of scores above cutoff: 23 Results file seqlinv-3-5-7.res made by mruhl on Wed 18 Jun 103 15:30:48-PDT. Times: Scores: FastDB - Fast Pairwise Comparison of Sequences Release 5.410-Results of the initial comparison of US-10-081-644-1' (1-1113) with: File : US10081644.seq * CPU 00:00:00.00 Unitary Mean 19 5.00 SEARCH STATISTICS PARAMETERS K-tuple Joining penalty Window size Median 14 5519 23 23 30 Standard Deviation 13.90 Total Elapsed 00:00:00:00.00 42-30 500

The scores below are sorted by initial score. Significance is calculated based on initial score.

A 100% identical sequence to the query sequence was not found.

The list of best scores is:

650 660 670	580 590 600 610 620 630 640 TAGCACCACCCCAAATCAATAATGGATGAGTATGTTGCGGGGTAGATGGGTGCCATTTTTGAG	510 520 530 540 550 550 570 AAGCAACAGTTACANCTTAGTATAGTATAGCATTGATAGGCAACTTGGGCAACTTGGGATTAGTTGATCAGTGGTGGATTAGTGATGGTGGACTTGGTGACCACTGGTGGTGGTACAGCAGTGATTAGTAGGAATTAGTGAGTG	440 450 460 470 480 490 500 TAACGCCTGCATCATGATAGACATCATCAGCACCATAAGACTTTAAAAGCTTTTCATGCTTTTTAG	360 370 380 400 410 420 430 GGATACTATCTCCCCTCCACAGCGTCAATAACATGTTGCAGGTTTGGATACTTCGATTTGATCTGCCCAA	290 300 310 320 330 340 TITCAATGGTCAATTGGAACCTCTAATAATGTGGCAGGTAGACTATCTGCTGTGTGACTTTATAAGCCTCGG	220 230 240 250 270 280 CTTGACCAGATGCACGATACAACTAATATCAATTTTAACATTATCTTTTCTGATTTCTTCAGGAATG	150 160 170 180 190 200 200 ACTIANCEANTITACCEGACTICATGATATTTTTTTTTAACGAATTTAACTGTGGCTTCATGATATTCTGGACTAGAAATCTTGTTGCACCCAATAGAATTTT	80 90 100 120 130 140 ATCTAAGCCGTTGCTGAAAACTTTAATATTCAT-ATGATGGATATCACCGTTGTTAAGGTGTGGATTTAT	X 10 20 70 TTATAACCTGCCAACATACCTTAACACTTTTTTATACCTTCTTTATACCTTCAGTGAGAGCTGGGACATACCTTGCTTATACCTTCTTTTATACCTTCAGTGAGAGCTGGGACATAGTCTTTTTATACCTTCTAGTGAGAGCTGGGACAAGCTGGTAGAAACAGATGTCTCAATGTCAACAAAAAAAA	Initial Score = 54 Optimized Sco Residue Identity = 40% Matches Gaps = 54 Conservative	1. US-10-081-644-1' (1-1113) US-10-081-644-1 Sequence 1, Appl	පිපිපි පි	Sequence Name Description
680	610 ATGTTGCGGGGTAGA: 	540 ATATGTTTGGCA CTCATCCATTATT S20	470 ATCAGCACCATAA IGCTGGTGT	400 AACATGTTGCAGG IGCTGATGAAATT 70 380	20 330 IGTGGCAGGTAGA IGGTGCATTTGCT	250 26 ATCAATTTTAACA rGAAGGTTGGAGA 10 250	180 TCTGGACTAGCA TCAATTCTAGGA	110 AT-ATGATGGATA FTGAAGGTTGAGG	40 ITTTTACCTTCTT ATCATTGAAGGTG 40	d Score = = :ive Substitut	Application US/10	lence 3, Application US lence 3, Application US lence 5, Application US lence 7, Application US lence 3, Application US	
690 7	0 GATGGGTGCCA GATTGTAACTG 600	550 ACTTGGATTAG GATTTGGGGTG 530	480 490 500 ATAAGACTITAAAAGCTTTTCATGCTTTTTAG	410 TTTGGATACTT 	340 CTATCTGCTGT GAATATGC-CA 320	0 270 TTATCTTTTCT TACCGGTTTCG 260	190 20 GGAAATCTTGTT TGTGACATTGCT 190 2	110 120 130 140 ATGATGGATATCACCGTTGTTAAGGTGTGGATTTATAA	50 TTATACCTTCA ACABAGCTGTT	378 Signif 460 Mismat tions	081644	1113 ve mean 1134 1132 1145	engt
00 71	TTCCATTTTTC	60 TTGTTGACCCA	490 CTTTTCATGCT ATCACTTGGGC	420 CGATTTGATCT TGTGAAGAACT 400	350 GACTTTATAGG GGGTTTATCC! 330	280 GATTTCTTCAC	00 210 TGCACCCAATAGAATTT TGGTACAGTTGTCAAAC 200 210	130 AAGGTGTGGA: AACCCAACTGJ	60 GTGAGAGCTGG 	ficance = tches =		**** 454 45 45 300 44 42 359	Opt.
0	AAGCC AAAGCAT 620	ACTGCTG	500 TTTTAG TCAAAA	430 GCTCAA TCGAAT	ACCITIG	GAATGC CGGTGCT	10 AGAATTT GTCAAAC 210	140 CTTATAA ATTGGAA	70 CTGGGACATC	2.52 625 0		2.52 0 1.87 0 1.80 0 1.66 0	Sig. Frame

54

420 430 440 450 450 450 470 470 480 490 490 490 490 490 490 490 490 490 49	430 440 450 160CAGTTTCGTTGACAACTGCTGGTGTTAGTTTTGTGTCATCACTTGGGCTCAAAAATGGAATGGCACCCAT [360 370 380 390 400 410 420 ACTCACTCAACTGCTGATGAAATTTCTGAAAGCCCCTGTGAAGACTTCGAATCTGCTGCATCAT	290 300 350 ACAGATCCTAAAAATGGTGCATTATGCCAAGGTTATCCAACCTTATACAAAATCACCTA	220 230 240 250 260 270 270 280 260 260 260 270 280 260 260 270 280 270 280 270 280 270 280 270 280 270 280 270 280 270 280 270 280 270 270 270 270 270 270 270 270 270 27	150 160 170 180 200 200 210 CATATTGCTTATAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACTT	80 90 100 110 120 130 140 GTTCCAGAATTAAAGGAGGTTACAGCCTTGGTGAAAGGTTGAATTGAAAG	10 X 20 30 40 50 ATTION AND AND AND AND AND AND AND AND AND AN	Initial Score = 422 Optimized Score = 635 Significance = 1.06 Residue Identity = 58% Matches = 652 Mismatches = 447 Gaps = 13 Conservative Substitutions = 0	5. US-10-081-644-1 (1:1113) 	1070 1080 1100 1110 X AAGGTATAAAAGAAGGTAAAAACAAAAATGTTAAGTATGTTTGCCAGGTTATATA	990 1000 1010 1020 1030 1040 1050 ACAGCGGTAGATGATCATCATCATCATTTAAAGTTTTACAGCAACGGCTTAGATGATGTCCCAGCTCACTGGATGATGTCACACGCTCACTGGATGGA	920 930 940 950 960 970 980 CAAGATTTCCTGCTAGTCCAGAATATCATGAAGCCACAGTTAAATTCGTTAAGTTTATAAATCCACACCTTA
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1070 A A 1	1000 ATA AAA 1	0-0	>—>	GT AA 780	710 A	≯ 0 0	н—н	
AAGAAGG' AAATCGG' 1070	TATCCA	930 TGCTAGT TGCTGAC	B60 TGTTAA:	790 TCTACCTG ACAGGATG	CCTGCAJ	640 CTTATGGTGC' AATATGGTGC' 640	570 TGCCAAA AGCCAAT 570	(2
1080 ;TAAAAAC; TAAGAAC; 1080	1010 ICATATGAA CCATATTCC	940 FCCAGAAT CCCAGAAG	AATTGAT	90 IGCCACA IGCTACC	720 \CATGTT. STATTTA 720	650 IGCTGAT	580 ACATATCA PAAATTGA	500
1090 AAAAATG TCTGGTG	AATATTY CCAGCA	O TATCATO GCCAGGI 940	870 ATTACT: AGAACAJ 870	800 TTATTAGA GTTGTCGA 800	730 ATTGACG GTCGACT	TGATGTCT	o AATGCTI AATGGCI	510
GTTAAGT	1020 TAAAGTTT CAAGGGTCT	950 BAAGCCAC AGAGCTGC	880 FTGTTGT AGACTGT	BAAGTGG	GETGEG	660 TTTGACT	590 PATACTAA 	
0 1080 1090 1100 1110 X AAGAAGGTAAAAACAAAAATGTTAAGTATGTTGCCAGGTTATAA	000 1010 1020 1030 1040 ##################################	960 CAGTTAAA CCACCGAA	ATCGTGO	810 GTTCCAAI ACTAATTT	740 GAAGCGA CGAATCA 740	670 ATCATGA ACCATGA	600 AGATTGTA AGATCATT	520
1110 CCAGGITA 	AACGGCTT	ATTCGT	890 CATCTGG RAGGCGG	820 IGACCAT	750 VAGATAGT VAAATACG	;ATGCAGG ;ATATTGA	PAACTGT	530
0 X ATAA AAACTAJ	1040 TAGATGA: TTTACGA: 1040	970 TAAGTTTA CAAGTTCA 970	900 TCAAGAA CCATGAA	TTGAAAG AAGAAAA	TATCCCC	680 . CGITATI CGIGGI/	610 TGCTTCTA GGCTTCTC	
ATCTAGAA 1120	1050 FGTCCCA FGTTCCT	GATAAAT 	AATTCTA	830 SCATTCCT ACGTCAAA 830	760 GAGGCCT ACAAGTGT 760	690 IGAGCAG NGAACAA	AAAAAG	540
AAC 0	AGCTCTCI	980 TCCACACO TCCAAAGJ	910 TTGGGTG TTTGGTG 910	840 GAAGAA AAGGAGI	770 TATAAAGT TACAAATG	;ATCAAA; ATTAAA; 690	620 IGCATGAAJ IACACGAAJ 620	550
	000 1010 1020 1030 1050 1050 1060 ARATCCATCATATGAAATATTAAAGTTTTCAGCAACGGCTTAGATGATGTCCCAGCTCTCACTGAAGGTATAA	930 940 950 950 970 980 990 990 990 990 990 990 990 990 99	860 870 880 890 900 920 920 920 920 920 920 920 920 9	190 190	0 720 730 740 750 760 770 780 ACCTGCAACATGTTATTGACGCTGTGGGAAGACGAGATAGTATCCCCGAGGCCTATAAAGTCACAGCAGATA	640 650 CITATGGTCCTGATGATGATCATATCATCATCATATCAAATCGAACTATCCAA L	570 580 590 600 610 620 630 TTGCCAAACATATCAATGCTTATACAATTGTAACTTGTTCTAAAAAGCATGAAAAGCTTTTAAAGT	J
	GTATAA 	AACGGTG GATGGGC	GATTTC	850 AAGATA GGCAAA 850	780 CAGATA CCGATA	ATCCAA ACAACA	TTAAAGT ETTGAAAG	560

X 10 20 30 40 50 ATGTCAGTTCCAACCACTCAAAAAGCCGTCATTCATTGAAGGTGACAAAGCTT	4. US-10-081-644-1 (1-1113) US-10-081-644-3 Sequence 3, Application US/10081644 Initial Score = 427 Optimized Score = 647 Significance = 1.08 Residue Identity = 58% Matches = 658 Mismatches = 455 Gaps = 9 Conservative Substitutions = 0	1070 1080 1090 1090 AAGGTATAAAAAAAAAAAAAAATGTTAAAGTATGTTGCCAAGGTATAAA AAGGTATAAAAAAAAAA	0 1000 1010 1020 1030 1040 1050 1060 ACAACGGTGATATCATATGAATATTATAAAGTTTTCAGCAACGGCTTAGATGATGTCCCCAGCTCTCACTG	920 930 940 950 960 970 980 CARGATTTCCTGCTAGTCCAGAATTATCATGAAGCTAAAATTCGTAAAGTTTATAAATCCACACCTTA	970 910 GAAAAGATAATGTTAAAATTGATATTGTTATCGTGCATCTGGTCAAGAAATTCTATTGGTGCAA	CAGCAGATAGTCTACCTGCCACATTATTAGAAGTGGTTCCAATGACCATTGAAAGCATTCGAAGAATCA	AGTATCCAAACCTGCAACATGTTATTGAGCTGTGGGAAGGTAATCCCCGAGGCCTATAAAGTCA	TITTAAAGTCTFATGGTGCTGATGATGTCTTTGACTATCATGATGCAGGCGTTATTGAGGAGATCAAATCAA	TARTCCAAGTTGCCAAACATATCATTATATAAAAGCATGTATGT	GGCACCCATCTACCCCGCAACATACTCATCCATTGATTGA	420 430 440 450 460 470 480 CTGCATCATTGCCAGTTTGGTTGACAACTGCTGGGTGTTAGTTTGTGTCATCACTTGGGCTCAAAAATGGAAT
850 870 890 900 910 GAAAGATAATGTTAAAATTGATATTTGTTGTTGTTGTGTCATCTGGTCAAAATTCTATTGGGTGCAA	780 790 810 820 830 840 CAGCAGATAGTCTACCTGCCACATTATTAGAAGTGTTCCAATGACCATTGAAAGCATTCCTGAAGAAATCA	710 720 730 740 750 760 770	630 640 650 660 670 680 690 700 TITTAAAGTCTTATGGTGCTGATGATGTTTGACTATGATGATGATGATGATGATGATGATGATGATGATGATG	560 570 580 590 600 610 620 TAATCCAAGTTGCCAAACATATCAATGCTTATACTAAGATTGTTAACTGTTAAAAAGCATGAAAAGC	490 500 510 520 530 540 550 GGCACCCATCTACCCCGCAACATACTCATCATTATTGAGTTGGGTGGTGCTACAGCAGTGGGTCAACAAC	420 430 440 450 470 480 CTGCATCATTGCCAGTTTCGTTGACAACTGCTGGTGTTTAGTTTGTGTCATCACTTGGGCTCAAAATGGAAT	350 360 390 390 400 A10 AGAGTAACTTAACTCACTCAACTGCTGATGAAATTTCTGAAGGCCCTGTGAAGAACTTCGAATCTG	280 290 300 310 320 330 GTGCTTCCCAAACAGATCCTAAAAATGGTGCATTTGCTGAATATTGCCAGGGTTTATCACCACCTTTGTTTTACA	210 220 230 240 250 260 270 TTGTCAAACTTGGACCAAATGCTAGTACTGACTTGAAAGGTTGGACATACCGGTTTTGTTCACG	140 150 200 200 170 180 190 200 200 CTGATTGGAAGCATATTGCTTATAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGAATTGCTGGTACAG	10 X 20 30 40 50 60 70 70 80 90 100 110 120 130 CAGATGTCTCAGTTCCAGAATTAAAGGAGGGTACAGCTTGGTGAAGGTGTTGCTGGTAACCCAA

TITRICCACCITTGITTINCAMAGNIANCITAACTCACTCACTCACTGAANTATCTCACAGGACCCTGGAA 100 210 220 23

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The scores below are sorted by initial score, Significance is calculated based on initial score
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                             sequence was
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-1113)
                                                                                                                           Total Elapsed 00:00:00:00.00
                                                                                                                                                      Standard Deviation 271.04
Init. Opt.
Length Score Score
                              found:
                                                                                                                                                                                                                                                                                                          866
                                                                                                                                                                                                                                 30
500
sig.
  Frame
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Initial Score = Residue Identity = Sequence Name The list of other best scores is: US-10-081-644-1 (1-1113)
US-10-081-644-1 Sequence 1, Application US/10081644 5 4 6 6 GATCCTAAAAATGGTGCATTTGCTGAATATGCCAGGGTTTATCCACCTTTGTTTTACAAGAGTAACTTAACT
290 300 310 320 330 340 350 360 GGACCAAATGCTAGTACTGAAGGTTGGAAGATACCGGTTTTGTTCACGGTGCTTCCCAAACA 440 450 450 450 450 460 450 450 500 TTGACAACTGCTGGTTAGTTTGTGTCATCACTTGGGCTCAAAAATTGGAATGGCACCATCTACCCCGCAAAAATTGGAATGGCACCCATCTACCCCGCAAAAATTGGAATGGCACCCATCTACCCCGCAATTGACCACTGCTGGTTAGTTTGTGTCATCACTTGGGCTCAAAAATTGGAATGGCACCCATCTACCCCGCAA 150 160 170 180 190 200 210
CATATTGCTTATAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACTT 80 90 100 110 120 130 140
GTTCCAGAATTAAAGGAGGGTACAGCCTTGGTGAAGGTTGAGGCTGTTGGTAACCCAACTGATTGGAAG ATCAATGCTTATACTAAGATTGTAACTGTTGCTTCTAAAAAGCATGAAAAGCTTTTTAAAGTCTTATGGTGCT CATATTGCTTATAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACTT GTTCCAGAATTAAAGGAGGGTACAGCCTTGGTGAAGGTTGAGGCTGTTGCTGGTAACCCAACTGATTGGAAG
80 90 100 110 120 130 140 US-10-081-644-14 Sequence 14, Application US-10-081-644-5 Sequence 5, Application US US-10-081-644-3 Sequence 3, Application US US-10-081-644-7 Sequence 7, Application US US-10-081-644-1 Sequence 1, 150 230 160 Description 450 1113 100% 0 **** 1 standard deviation above mean **** 380 380 600 240 Optimized Matches Conservative Substitutions 460 390 390 Application 610 250 180 470 400 400 260 S 190 480 Init. Length Score 410 410 509 1134 1145 1145 1122 1113 Significance = Mismatches = 630 1113 504 427 427 427 490 420 Opt. Score 1113sig. 500 3.61 0 0 1.36 1.08 1.08 1.06 W 430 430 . 61 Frame

ATCAATGCTTATACTAAGATTGTAACTGTTGCTTCTAAAAAGCATGAAAAGCTTTTAAAGTCTTATGGTGCT

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Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                    Result
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Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      al number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                             310.5
266.5
                                                                                                                                                                                                                                                                 Score
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seq length: 2000000000
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1: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1986.DAT:*
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11: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
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Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  908470 seqs, 133250620 residues
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         13.9
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13.8
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13.2
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Copyright (c) 1993 - 2003 Compugen Ltd.
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                               ABP10927

AAY96748

AAB27051

AAU807748

AAU35110

ABB47714

AAG43467

AAG43468

AAG22152
                                                                                                                                                                                                                                                                                                                                      SUMMARIES
Enterococcus faeca
Listeria monocytog
Arabidopsis thalia
Arabidopsis thalia
Arabidopsis thalia
Arabidopsis thalia
                                                                                                                                                                                                                                                                 Description
                                                                                                                                             Eucalyptus grandis
                                                                                                                                                                                             Human ORFX protein A. terreus LovC de
                                                                                                                                                                     Auxin-induced prom
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ccus pol	ABP28623	23	357	7.6	145.5	٠.
is thal	AAG28986	21	343	7.7	4	-
is thali	AAG05684	21	362	7.7		~
		21	351	7.7	•	٠٠
thali	AAG27476	21	370	7.7		_
•	ABB92696	23	348	7.7		_
Arabidopsis thalia	AAG27477	21	348	7.7		v
_		21	348	7.7		w
C glutamicum prote	AAG89976	22	318	7.8	4	~
Human oxidoreducta		21	332		149.5	٠,
d sequen	AAY23994	20	322		•	٠.
-+	AAG50141	21	325	7.9	151	
Arabidopsis thalia		21	325		151	~
쪾.	ABP38413	23	340		151.5	
Sec. alcohol-dehyd	AAR71935	16	336	8.0	Ψ	_
Propionibacterium	AAU59488	22	334	8.1	155	_
ptus gra	074	23	117	8.1	155	•
 induced pro 	AAB27050	21	117	٠	Ç,	~
-ae	ABB11836	22	413	٠	158.5	~
n-2 rec	AAR97569	17	396	8.3	•	٠.
, 1	AAG05066	21	292	8.4	σ	٠.
s thali	AAG05067	21	267	8.4	162	_
t S	AAG05068	21	262	8.4	σ	_
s thali	AAG39981	21	354		164.5	
lly acti		23	329		164.5	
s thali	AAG39982	21	329		164.5	_
is thali	in	21	324	•	164.5	•
is thali		21	366	٠	σ	~
is thali	2858	21	366	•		~
is thali	524	21	363		167	٠.
opsis thali	AAG28581	21	363	•	σ	٠.
orynebacterium	795	22	337		9	-
lutamicum prot	9307	22	337		168	_
tococcus lacti	40	23	328	9	173	
Enterococcus faeca	AAU35351	22	338	10.7	206	

ALIGNMENTS

PR XX PA XX PI	X	2	RESI ABP ID XX AC XX DT DX XX DX
30-MAY-2000; 2000US-206132P. 29-AUG-2000; 2000US-228716P. (CURA-) CURAGEN CORP. Shimkets RA, Leach MD;	WO200192523-A2. 06-DEC-2001. 29-MAY-2001; 2001WO-US10836.	Human; open reading frame; ORFX; gene therapy; cancer; cirrhosis; hyperproliferative disorder; psoriasis; benign tumour; haemorrhage; degenerative disorder; osteoarthritis; neurodegenerative disorder; cardiovascular disease, diabetes mellitus; systemic lugus erythematosus; hypertension; hypothyroidism; cholesterol ester storage disease; immune deficiency; immune disorder; infectious disease; autoimmune disorder; rheumatoid arthritis; autoimmune thyroiditis; myasthenia gravis.	RESULT 1 ABP10927 standard; Protein; 131 AA. ID ABP10927 standard; Protein; 131 AA. XX AC ABP10927; XX XX XX DT 25-JUN-2002 (first entry) XX

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RESULT 2
AAY96748
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequences can be used in gene therapy. ORFX sequences can be used in the treatment of cancer, hyperproliferative disorders, cirrhosis of liver, psoriasis, benign tumours, keloid, degenerative disorders, haemorrhage, osteoarthritis, neurodegenerative disorders, disorders related to organ transplantation, cardiovascular diseases, diabetes mellitus, systemic lupus erythematosus, hypertension, hypothyroidism, cholesterol ester storage diseases, various immune deficiencies and disorders, infectious diseases, autoimmune disorders such as multiple sclerosis, rheumatoid arthritis, autoimmune inflammatory eye disease. ORFX proteins are also useful for treating burns, incisions, ulcers, for treating osteoporosis, bone degenerative disorders, or periodontal disease, and for gut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protection or regeneration and treatment of lung or liver fibro reperfusion injury in various tissues and conditions resulting systemic cytokine damage.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            proteins given in ABP00010 to ABP11500. ORFX proteins are useful for treating or preventing a pathology associated with an ORFX-associated disorder in humans, and in the manufacture of a medicament for treating syndrome associated with ORFX-associated disorder. ORFX polynucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The present invention describes substantially purified human protonetered to as open reading frame, ORFX, where X is 1-11491 (see in the specification). ABNIS-762 to ABNIZ-725 encode the human ORFX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Novel human polypeptides and polynucleotides useful for diagnosing, preventing and treating cardiovascular disease, neurodegenerative, hyperproliferative disorders and autoimmune disorders
                                     WO200037629-A2
                                                                          Aspergillus terreus
                                                                                                                                                                      A. terreus
                                                                                                                                                                                                            09-OCT-2000
                                                                                                                                                                                                                                                 AAY96748
                                                                                                                                                                                                                                                                                    AAY96748 standard; Protein; 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          specification,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Disclosure; SEQ ID 21836; 1037pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2002-106308/14
                                                                                                                                 Lovastatin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                    191 KHINAYTKIV 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           131
                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The sequence data for this patent did not form part of the printed incation, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            64
                                                                                                             reductase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQQLIQVA 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PNVDAARFAIGDYIYGVIHGASVRFPSNGAFAEYSAISSETAYKPAREFRLCGKDKLPEG
                                                                                                                                                                                                                                                                                                                                                                               KKLNGFSKII
                                                                                                                                                                                                                                                                                                                                                                                                                                                         PVKSLEGAVSLPVSLTTAGMILTHSFGLDMTWKPSKAQRDQPILFWGGATAVGQMLIQLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PNA-STDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYK--SNLTHSTADEISEG
                                                                                                                                                                    LovC dehydrogenase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131
                                                                                                           D4B segment; monacolin J; dehydrogenase; LovC; anti-lipemic;
uctase inhibitor; anti-hypercholesterolaemic; anti-fungal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                          (first entry
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 310.5; DB 23;
Pred. No. 2e-20;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Table
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29-JUN-2000.

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The proteins shown in AAY96744-60 are encoded by 17 genes from a CC cluster in Aspergillus terreus (ATCC 20542), which flank the NPKS CC (nonaketide polyketide synthase) gene, which is known to be required for CC (nonaketide polyketide synthase) gene, which is known to be required for CC the entire gene cluster but is not indicated here (see US744350). The CC genes and proteins are named "ORF" or "Lov", where "Lov" signifies genes CC shown to be essential for lovastatin production. The portion of the gene CC cluster between ORF1 and the mid-region of LovF is referred to as the CC "PAB segment". Increasing lovastatin, or monacolin J, production in a CC lovastatin-producing organism, comprises transforming the organism with CC a DAB segment, and expressing it (claimed). Lovastatin will also be CC produced in non-lovastatin producing organisms (e.g. A. nidulans) by CC transformation with the DAB segment and the entire LovF gene. The CC methods are used to increase biosynthetic production of lovastatin (with a least 5-fold increase) which is an anti-hypercholesterolaemic CC agent, and also has some anti-fungal activity. Lovastatin inhibits the CC degent, and also has some anti-fungal activity. Coola) into mevalonate CC by HMG-COA reductase. The methods can also be used to increase production of monacolin J (claimed), which has anti-fungal activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Increasing lovastatin or monacolin {\tt J} production in an organism, as antihypercholesterolemic or antifungal agents, comprises transforming the organism with a D4B segment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; Page 62-63; 116pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2000-442660/38
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (WISC ) WISCONSIN ALUMNI RES FOUND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-DEC-1998;
                                                                                                                                                                                                                                                   169
                                                                                                                                                                   227
                                                                                                                                                                                                          234
                                                                                                                                                                                                                                                                                        174 LIWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKS
                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                          119 LTHSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPST---PQHTHP--L 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          63
                                                                                                                                                                                                                                                                                                                                                                                                                   68 TDYAGTVVAVGSDV-THIQVGDRVYGAQNEMCPRTPDQGAFSQYTVTRGRVWA-----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
RVVQGGFDHIKQGMELVRKGELSGEKLVVRL
                                      KVFSNGLDDVPALTEGIKEGKNKNVKYVARL 370
                                                                                                                        LLYRASGQEILLGATRF---
                                                                                                                                                                 ||:::|::::
YTKNNLRYALDCITNVESTTFCFAAIGRAGGHY--
                                                                                                                                                                                                        -KYPNLQHVIDAVGSEDSIPEAYKVTADSLPATLLEVVPMTIESIPEE-IRKDNVKIDIT
                                                                                                                                                                                                                                             LVYGGSTATATVTMQMLR-LSGYIPIAT-CSPHNFDLAKSRGAEEVFDYRAPNLAQTIRT
                                                                                                                                                                                                                                                                                                                                   -----KIPKG--LSFEQAAALPAGISTAGLAM-KLLGLPLP-SPSADQPPTHSKPVYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEY----ARVYPPLFYKSN 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PPQQTALTVNDHDEVTVWNAAPCPMLPRDQVYVRVEAVAINPSDTK-MRGQFATPWAFLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PTTQKAVII-EGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPEGSILG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    363
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98US-0215694
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                                                                                 LGPTIFGEGSTWPAPYGRPGSEEERQFGEDLWRIAGQLVEDGRLVHHPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13.9%; Score 266.5; DB 2
26.3%; Pred. No. 9.4e-16;
tive 69; Mismatches 156
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                                                                                                                          PASPEYHEATVKFVKFINPHLNNGDIHHMNI
    360
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                                                                                                                                                                   --VSLNPFPEHAATRKMVTTDWT
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RESULT 4
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                     pine. The present protein is encoded by one such promoter. The coding sequence for the present protein is useful for modulating the transcription of DNA sequences of interest. The sequences may also be used to tag or identify an organism or its reproductive material.
                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             05-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB; AAC62778
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30-JUL-1999;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eucalyptus grandis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 4; Pages 64-65; 93pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Perera R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Promoter;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAB27051 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present invention relates to promoter sequences from eucalyptus and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Auxin-induced promoter protein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAB27051;
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(FLET-) FLETCHER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   el promoter sequences useful for modulating transcription of plant sequences of interest and production of polypeptides -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000-647236/62
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                                                                                                                                                                                            122
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                                                                                                           226 GVIEQIKSKYPNLOHVIDAVGSEDSIPEAYK 256
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                                                                                                                                                                                                                                                                                                                              3 VPTTQKAVII--EGDKAVV---KTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENESIS RES & DEV CORP LTD
                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                              GFSLPAVPGYDLAGVVVKVGREVK-ELKVGDEVYGFMFHAK----KDGTLAEYAAVEESF 121
                                                                                                                                                                                                                                                                        G----SILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPL
                                                                                                                                                                                                                                                                                                     IPTKMKAWVYREHGDVANVLGLDPELKVPELQEGQVLVKVLAAALNPIDTARVKGVIKLP
                                                                                                                                      ---HGKSLLVLGGAGGVGTLIIQLAKEVFGASRVAATSSTGKLELLKSLGADLAIDYTKV 211
                                                                                                                                                                                                                     FYKSNLTHSTADEISEGPVK-NFESAASLPVSLTT-----AGVSLCHHLGSKMEWHPS
                                                                                 N-FEDLPEKF---DVVYDTVGEIERAAKAVK 238
                                                                                                                                                                TPOHTHPLLIWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDA 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          eucalyptus; pine; gene transcription
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rice SJ,
                                                                                                                                                                                                                                                                                                                                                                                                                 318
                                                                                                                                                                                                                                                                                                                                                           Conservative
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99US-0146591.
                                                                                                                                                                                         -----LALKPKKLRFGEAASLPVVIQTAYGGLERAGLS
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                                                                                                                                                                                                                                                                                                                                                                      13.9%; Score 266; DB 21; 33.6%; Pred. No. 8.6e-16;
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                                                                                                                                                                                                                                                                                                                                                           93;
                                                                                                                                                                                                                                                                                                                                                                                   Length 318;
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AAU80748 standard;

Protein; 318

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                                                                                                                                                                                                                                                                                                                                                                                                                          polypeptides and their related polynucleotides are useful in the production of genetic constructs, used for modifying gene expression in a target organism, in particular a plant. The method is useful for modifying expression of a polynucleotide that comprises an intron sequence, through removal of the intron sequence. The method is useful for modifying growth and development of plants, and cellular responses to external stimulus, such as environmental factors and disease pathogens. The sequences are useful in genome and physical mapping, in positional cloning of genes, in various assays to determine biological activity, to raise antibodies, to isolate corresponding interacting proteins and other compounds, and to quantitatively determine levels of interacting proteins or other compounds. Sequences ABU80745-AAU80764 represent Pinus radiata and Eucalyptus grandis polypeptides of the invention.
                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to isolated promoter sequences from Pinus radiata and Eucalyptus grandis, comprising a sequence chosen from leaf, root, flower, pollen, bud-, meristem-specific promoters or temporally
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 13; Page 80-81; 121pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eucalyptus grandis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     polynucleotides in transgenic plants
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Novel polynucleotide promoter sequences from Pine and Eucalyptus useful for modifying expression of endogenous and/or heterologous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Perera
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28-NOV-2000;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             regulated promoters such as xylogenesis-specific promoters.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Promoter; pine; leaf; root; flower; pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (FLET-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GENE-)
                                                                                                                                                                                                                                                                                                                                     Local Similarity
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                        TPQHTHPLLIWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDA
                                                                                                                 FYKSNLTHSTADEISEGPVK-NFESAASLPVSLTT-----AGVSLCHHLGSKMEWHPS
                                                                                                                                                                                           G----SILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPL
                                                                                                                                                                                                                                                                       VPTTQKAVII--EGDKAVV---KTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPE
---HGKSLLVLGGAGGVGTLIIQLAKEVFGASRVAATSSTGKLELLKSLGADLAIDYTKV
                                                                                                                                                        GFSLPAVPGYDLAGVVVKVGREVK-ELKVGDEVYGFMFHAK----KDGTLAEYAAVEESF 121
                                                                                                                                                                                                                                  I PTKMKAWVYREHGDVANVLGLDPELKVPELQEGQVLVKVLAAALNPI DTARVKGVI KLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        grandis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rice S,
                                                                                                                                                                                                                                                                                                                                                                                               318 AA;
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                                                                                                                                                                                                                                                                                                              13.9%;
ilarity 33.6%;
Conservative 3
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2000US-0724624.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                promoter; Pinus radiata; Eucalyptus grandis
                                                                          -LALKPKKLRFGEAASLPVVIQTAYGGLERAGLS-
                                                                                                                                                                                                                                                                                                                  31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        polypeptide #4.
                                                                                                                                                                                                                                                                                                              Score 266; DB 23;
Pred. No. 8.6e-16;
1; Mismatches 93;
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                                                                                                                                                                                                                                                                                                                                                   Length 318;
                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The
                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             promoter
211
                                                                                                                   165
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                                   225
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N-FEDLPEKF---DVVYDTVGEIERAAKAVK GVIEQIKSKYPNLQHVIDAVGSEDSIPEAYK 256

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RESULT 5
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23-MAY-2000;
26-MAY-2000;
26-MAY-2000;
23-OCT-2000;
27-NOV-2000;
22-DEC-2000;
                                                                                                                                                                                                                                                                                                                                            pneumoniae, Pseudomonas aeruginosa and Enterococcus faecalis. The invention is also useful for the identification of potential new targets for antibiotic development. The antisense nucleic acids can also be used to identify proteins used in proliferation, to express these proteins, and to obtain antibodies capable of binding to the expressed proteins. The proteins can be used to screen compounds in rational drug discovery programmes. The antisense nucleic acid sequence is also useful to screen for homologous nucleic acids which are required for cell proliferation in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genes, their use in the discovery of novel antibiotics, the essential genes themselves and the encoded proteins. The prokaryotes used are Escherichia coli, Staphylococcus aureus, Salmonella typhi, Klebsiella
                                                                                                                                                                                                        a wide variety of organisms. The present sequence represents essential prokaryotic cellular proliferation protein. Note: The sequence data for this patent did not form part
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    prokaryotic genes, their
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to antisense inhibitors of genes essential prokaryotic cellular proliferation, their use in identifying the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New polynucleotides for the identification and development antibiotics, comprise sequences of antisense nucleic acids
Sequence
                                                                                                                      of the printed specification, format directly from WIPO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Haselbeck R,
Yamamoto RT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAU35110
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                                                                                      ftp.wipo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 3;
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                                                                                      .int/pub/published
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Seq ID No 10703; 511pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              prokaryotic cellular
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2000US-206848P.
2000US-207727P.
2000US-242578P.
2000US-257931P.
2000US-257931P.
2001US-269308P.
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Xu HH;
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Query Match Best Local Sim: Matches 106;

Local Similarity

13.8%;

Conservative

42;

Score 265; DB 22; Pred. No. 1.1e-15; 2; Mismatches 125;

Length 322; Indels

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Gaps

15;

it are useful

invention relates to the genome sequence of Listeria es EGD-e (see ABA03041). The genome sequence and fragrul for selecting probes and primers for detecting genues and related organisms, and for studying genetic ms and other genomes. The present sequence is a prote-

fragments g genes in genes

다 없

monocytogenes

Claim

6;

SEQ

ID No 419;

192pp; French.

related

polypeptides

Genomic sequence for Listeria monocytogenes, useful e.g. for and prevention of Listeria and related bacterial infections,

for

treatment

and

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RESULT 6
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Rose M, Voss
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   l; gene therapy; vaccine; biosynthesis; biodegradation;
bacterial infection; disease.
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4, Ng E, Vazquez-Boland JA;
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RESULT 7
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09-MAR-1999;
23-MAR-1999;
25-MAR-1999;
29-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         encoded by the genome sequence of the present invention. Proteins expressed from the genome sequence are useful for raising specific antibodies, identification of L. monocytogenes and related organisms, and for biosynthesis and biodegradation, especially biosynthesis of Vitamin B12. The genome sequence and proteins encoded by it are also useful for selecting compounds that regulate gene expression and cell replication and modulate L. monocytogenes-related diseases. In addition, the genome sequence and proteins encoded by it are useful in pharmaceutical and vaccines compositions for the treatment or prevention of infections by L. monocytogenes and related organisms.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at fit, wipo.int/pub/published_pct_sequences.
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                                                                                                                                                                    Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter
                                                                                                                                                                                                                                                                  AAG43467 standard; Protein; 386 AA.
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                                                                                                                   EP1033405-A2.
                                                                                                                                        Arabidopsis thaliana
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                                                                                                                                                                                                                                                                                                                         EQLKELGKLLANKTIKPIVGAT-FPFSEKGVFDAHALSETHHAVGKIVISFN 312
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                                                                                                                                                                                                    thaliana protein fragment SEQ ID
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                                                                         2000EP-0301439
99US-0121825.
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99US-0123548.
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19-JUL-1999; 19-JUL-1999; 19-JUL-1999;

99US-0144331. 99US-0144332. 99US-0144333. 99US-0144334.

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RESULT 8
AAG43468
ID AAG44
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AC AAG4
XX AAG6
XX 
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Best Local S
Matches 88
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13-OCT-1999;
13-OCT-1999;
14-OCT-1999;
                                                                                                                                                                                               Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
   06-SEP-2000
                                                                  EP1033405-A2
                                                                                                                                    Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                   Arabidopsis
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         231 IKSKYPNLQHVIDAVGSEDS----IPEAYKVTA 259
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Similarity 32.2%;
98; Conservative :
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99US-01610989

99US-0161404

99US-0161405

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99US-0161361

99US-0161361

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99US-0161992

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99US-0161993
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99US-0159331.
99US-0159637.
99US-0159637.
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99US-0160767.
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99US-01607768.
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Pred. No. 3.3e-15;
7; Mismatches 104;
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                                                                                                                                                                                                                                                                                                                                          SEQ ID
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03-AUG-1999; 04-AUG-1999; 04-AUG-1999; 05-AUG-1999; 05-AUG-1999;

99US-0144335.
99US-0144632.
99US-0145086.
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99US-0145086.
99US-0145089.
99US-0145192.
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16-SEP-1999; 20-SEP-1999; 22-SEP-1999; 23-SEP-1999;

13-SEP-1999

27-AUG-1999; 30-AUG-1999; 31-AUG-1999; 01-SEP-1999; 07-SEP-1999;

99US-014935.
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23-AUG-1999; 25-AUG-1999; 26-AUG-1999; 27-AUG-1999; 27-AUG-1999;

-AUG-1999; -AUG-1999; -AUG-1999; -AUG-1999;

24-SEP-1999 28-SEP-1999 29-SEP-1999 04-OCT-1999; 05-OCT-1999 06-OCT-1999; 07-OCT-1999; 08-OCT-1999;

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9US-0139763. 9US-0139817. 9US-0139899. 9US-0140353. 9US-0140695. 9US-0140823. 9US-0140827. 9US-0141842. 9US-0142154.	US-0139453 US-0139454 US-0139455 US-0139456 US-0139456 US-0139459 US-0139459 US-0139460 US-0139461 US-0139461 US-0139462 US-0139462 US-0139463	99US-0135629. 99US-0136021. 99US-0136392. 99US-0136782. 99US-0137528. 99US-0137524. 99US-0137524. 99US-0138094. 99US-0138840. 99US-0138847. 99US-0138149.			9000EP-0301439. 99US-0121825. 99US-0123180. 99US-0123548. 99US-0125788. 99US-0126264. 99US-0127462.
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27-AUG-1999 27-AUG-1999 30-AUG-1999 31-AUG-1999 31-AUG-1999 01-SEP-1999 07-SEP-1999 10-SEP-1999 13-SEP-1999 15-SEP-1999 16-SEP-1999 20-SEP-1999	3-AUG-199 3-AUG-199 3-AUG-199 7-AUG-199 7-AUG-199 0-AUG-199 0-AUG-199 0-AUG-199 3-AUG-199 3-AUG-199 3-AUG-199 5-AUG-199	2-AUG-19 3-AUG-19 4-AUG-19 5-AUG-19 5-AUG-19 6-AUG-19 9-AUG-19 9-AUG-19 1-AUG-19	2-JUL-1 2-JUL-1 3-JUL-1 3-JUL-1 3-JUL-1 6-JUL-1 7-JUL-1 7-JUL-1 7-JUL-1 8-JUL-1 8-JUL-1 8-JUL-1 8-JUL-1	9-JUL-199 9-JUL-199 9-JUL-199 9-JUL-199 9-JUL-199 0-JUL-199 1-JUL-199 11-JUL-199 11-JUL-199 11-JUL-199	08-JUL-1999; 09-JUL-1999; 12-JUL-1999; 13-JUL-1999; 15-JUL-1999; 16-JUL-1999; 16-JUL-1999; 19-JUL-1999;
99US-0151066 99US-0151080 99US-0151030 99US-0151438 99US-0151930 99US-0153070 99US-0153070 99US-0154075 99US-0154075	99US-0148565 99US-0148684 99US-0149178 99US-0149175 99US-0149726 99US-0149722 99US-0149723 99US-0149929 99US-0149930 99US-0149930 99US-0150566 99US-0150884	99US-0146389. 99US-0177038. 99US-0147204. 99US-0147302. 99US-0147302. 99US-0147303. 99US-0147416. 99US-0147416. 99US-0147493. 99US-01483171. 99US-0148319.	99US-0145089 99US-0145192 99US-0145145 99US-0145124 99US-0145224 99US-0145276 99US-0145276 99US-0145913 99US-0145919 99US-0145919 99US-0145951 99US-0145951	99US-014433 99US-0144333 99US-0144333 99US-0144335 99US-0144352 99US-0144894 99US-0144814 99US-0144814 99US-0145088 99US-0145088	99US-0142803 99US-0142977 99US-0143542 99US-0143624 99US-0144005 99US-0144085 99US-0144085 99US-0144285 99US-0144325

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RESULT 9
AAG22152
ID AAG2
XX
AC AAG2
XX
DT 17-0
XX
DE Arab
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Best Local Similarity
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          Arabidopsis thaliana protein
                             17-OCT-2000
                                                 AAG22152;
                                                                    AAG22152 standard; Protein; 386
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                                                                                                                                                           QLAKHVYGASKVAATASTEKLELVRSLGADLAIDYTKEN-IEDLPDKY---DVVFDAIGM
                                                                                                                                                                             QVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQHVIDAVGS
                                                                                                                                                                                                   -----DFAQAAGLPLAIETADEGLV-----RTEFSAG-----KSILVLNGAGGVGSLVI
                                                                                                                                                                                                                SEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEMHPSTPQHTHPLLIWGGATAVGQQLI
                                                                                                                                                                                                                                                   KLGPNASTDLKVGDTGFGFVHGASQTDPKN-GAFAEYARVYPPL--FYKSNLTHSTADEI
                                                                                                                      CDKAVKVIKEGGKVVA 239
                                                                                                                                     EDS----IPEAYKVTA 259
                                                                                                                                                                                                                                                                                                    DKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKI----GPEGSILGCDIAGTVV
                                                                                                                                                                                                                                         KVG-SAVKDLKEGDEVYANVSEKALEGPKQFGSLAEYTAVEEKLLALKPKNI-----
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                             (first entry)
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99US-0158232

99US-0158236

99US-0159294

99US-0159295

99US-0159295

99US-0159231

99US-0159330

99US-0159638

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99US-0160767

99US-0160768

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99US-01610769

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99US-0161350

99US-0161406

99US-0161409

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S-0156458.
S-0156596.
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                                                                                                                                                                                                                                                                                                                       Score 254; DB 2
Pred. No. 1e-14;
5; Mismatches
          fragment SEQ ID NO: 24972.
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                                                                                                                                                                                                                                                                                                                       97;
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                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                              223
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                                                                                                                                                                                                                                                                                                                        10;
   25-FEB-1999;
05-MAR-1999;
09-MAR-1999;
23-MAR-1999;
25-MAR-1999;
29-MAR-1999;
01-APR-1999;
06-APR-1999;
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20-MAY-1999;
21-MAY-1999;
21-MAY-1999;
24-MAY-1999;
25-MAY-1999;
27-MAY-1999;
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05-MAY-1999;
06-MAY-1999;
06-MAY-1999;
07-MAY-1999;
11-MAY-1999;
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21-APR-1999;
23-APR-1999;
23-APR-1999;
28-APR-1999;
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14-MAY-1999;
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01-JUN-
03-JUN-
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07 - JUN-
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99US-0132485.
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99US-0126785.
99US-0127462.
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genetic mapping; gene expression control; promoter;
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23-JUN-1999; 24-JUN-1999; 28-JUN-1999; 29-JUN-1999; 30-JUN-1999;

01-JUL-1999 01-JUL-1999

02-JUL-1999, 06-JUL-1999, 08-JUL-1999, 09-JUL-1999, 12-JUL-1999, 13-JUL-1999, 14-JUL-1999,

15-JUL-1999; 16-JUL-1999; 16-JUL-1999;

19-JUL-1999; 19-JUL-1999; 19-JUL-1999; 19-JUL-1999;

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l Similarity 31.5%;
86; Conservative
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                                                     HPLLIWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQ
                                                                                             DSPLPTVPGYDVAGVVVKVG-SAVKDFKEGDEVYANVSEKALEGPKQFGSLAEYTAVEEK
                                                                                                                                        -GPEGSILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKN-GAFAEYARVYPP
                  IKSKYPNLQHVIDAVGSEDS----IPEAYKVTA
                                    KSILVINGAGGVGSLMIQLAKHVYGASKVAATASTGKLEIVRSIGADLAIDYTKEN-IED
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99US-0169029

99US-0160980

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; Pred. No. 1.4e-14;
37; Mismatches 106
                                                                                 --DFAQAAGLPLAIETADEGLV----RTEFSAG-
316
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99US-0140354 99US-0140823; 99US-0140823; 99US-0141267 99US-0142803 99US-0142803 99US-0142803 99US-0142803 99US-0142803 99US-0144286 99US-0144085 99US-0144085 99US-0144085 99US-0144085 99US-0144331 99US-0144331 99US-0144333 99US-0144333 99US-0144333 99US-0144333 99US-0146386 99US-0149723 99US-0149723 99US-014902 99US-014902 99US-014902 99US-015066 99US-0151066 99US-0151066 99US-0151066

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99US-0139456. 99US-0139457. 99US-0139458. 99US-0139458. 99US-0139459.	S06 S06 S06	945	L3854 L3884	99US-013/502. 99US-0137724. 99US-0138094	13752	13678	13602 13602	99US-0135353.	99US-0134941. 99US-0135124.	99US-0134370.	-013	-013425 -013421	99US-0132487. 99US-0132863.	99US-0132486.	99US-0132484.	99US-0132048. 99US-0132407.	99US-0130891. 99US-0131449.	99US-0130510.	99US-0129845. 99US-0130077.	99US-0128714.	99US-0127462.	-012626 -012678	44	9US-012182 9US-012318	2000EP-0301439.			thaliana.	assay; genetic quence.	fication; signal	thaliana protein f	(first entry)		standard; Protein; 309
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QVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQHVIDAVGS
                 -----DFAQAAGLPLAIETADEGLV-----RTEFSAG-----KSILVLNGAGGVGSLMI
                                 SEGPVKNFESAASIPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQQLI 187
                                                                  KLGPNASTDLKVGDTGFGFVHGASQTDPKN-GAFAEYARVYPPL--FYKSNLTHSTADEI 127
                                                                                    DVLKLESNIAVPEIKEDQVLIKVVAAGLNPVDAKRRQGKFKATDSPLPTVPGYDVAGVVV
                                                                                                    DKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKI----GPEGSILGCDIAGTVV
                                                  KVG-SAVKDFKEGDEVYANVSEKALEGPKQFGSLAEYTAVEEKLLALKPKNI-----
                                                                                                                       Conservative
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99US-0161361.
99US-0161920.
99US-0161992.
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99US-0154039.
99US-0154779.
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99US-0151080.
99US-0151303.
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99US-0161359
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Pred. No. 4.5e-14;
5; Mismatches 99
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                                                                                                                                    Length 309;
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247
                 167
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RESULT 11
AAU35351
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                                         The invention relates to antisense inhibitors of genes essential to CC prokaryotic cellular proliferation, their use in identifying the CC genes, their use in the discovery of novel antibiotics, the essential CC genes themselves and the encoded proteins. The prokaryotes used are Escherichia coli, Staphylococcus aureus, Salmonella typhi, Klebsiella CC pneumoniae, Pseudomonas aeruginosa and Enterococcus faecalis. The CC invention is also useful for the identification of potential new targets for antibiotic development. The antisense nucleic acids can also be used to identify proteins used in proliferation, to express these proteins. CC and to obtain antibodies capable of binding to the expressed proteins. CC The proteins can be used to screen compounds in rational drug discovery programmes. The antisense nucleic acid sequence is also useful to screen CC programmes. The antisense nucleic acid sequence cell proliferation in a wide variety of organisms. The present sequence represents an CC essential prokaryotic cellular proliferation protein.

CC Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from MIPO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21-MAR-2000;
23-MAY-2000;
26-MAY-2000;
23-OCT-2000;
27-NOV-2000;
Sequence
                                                                                                                                                                                                                                                                                                                                                                             New polynucleotides for the identification and development antibiotics, comprise sequences of antisense nucleic acids
                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-611495/70.
N-PSDB; AAS53210.
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Yamamoto RT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAU35351 standard; Protein; 338 AA
                               ftp.wipo.int/pub/published
                                                                                                                                                                                                                                                                                                                                              Example 3; Seq ID No 10944; 511pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-MAR-2001; 2001WO-US09180
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Antisense; prokaryotic cellular proliferation antibiotic; antibacterial; drug design.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ELIT-) ELITRA PHARM INC.
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2000US-207727P.
2000US-242578P.
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2000US-257931P.
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Xu HH;
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Query Match

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Score 206;

DB 22;

Length 338;

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RESULT 12
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          invention users accomproduction of yogurt and cheese.

Note: The sequence data for this patent is based on equivalent patent W0200177334 (published 18-OCT-2001) which is available in electronic formar directly from WIPO at ftp.wipo.int/pub/published_pct_sequences
                                                                            The present invention is related to a Lactococcus lactis nucleotide sequence (ABA90521) and related proteins (ABB53300-ABB55621). The nucleic acid sequence is useful in the detection and/or amplification nucleic acid sequence, particularly to identify Lactococcus lactis or related species. The proteins of the invention are useful for the biosynthesis or biodegradation of a composition of interest. The invention helps research in lactic bacteria, particularly useful in the invention helps research in lactic bacteria, particularly useful in the sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABB54030 standard;
                                                                                                                                                                                                 Claim
                                                                                                                                                                                                                                        New nucleotide sequence useful in
                                                                                                                                                                                                                                                                    WPI; 2002-043418/06
                                                                                                                                                                                                                                                                                                Bolotine
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                                                                                                                                                                                                SEQ ID No
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKN--GAFAEYARV--YPPLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QKELAIE-----EVPLPTIHDNDVLVKIIAASINPIDLKTKDGKVKMLLNYQM---P
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IQAGSGGIGTIAIQLAKLAGAY--VATTTSSKNKEWVQALGADEVIDYRTQN-FEEVLSD
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                                                                                                                                                                                                                            related
328
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                                                                                                                                                                                                                          species
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entry)
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                                                                                                                                                                                                                                                                                                Renault
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smatches 87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                --GTILEKAFSVVKPQGKVVTLSGIPNE 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bacterium; yogurt;
                                                                                                                                                                                                                                        identification
                                                                                                                                                                                                                                                                                                Ehrlich
                                                                                                                                                                                                                                                                                                SD
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                                                                                                                                                                                                                                        or
                                                                                                                                                                                                                                        Lactococcus
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                                                                                  in the
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Query Match Best Local :

Local Similarity

28 9

Score Pred.

173; No. 2

DB 23; .8e-07;

Length

328;

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RESULT 13
AAG93071
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                                                                                                                                                                                                                                                Nakagawa
Tateishi
                     sequences from the Coryneform bacterium Corynebacterium glutamicum. These are useful for identifying the mutation point of a gene derived from a mutant of coryneform bacterium, measuring expression amount and analysing the expression profile or expression pattern of a gene derived from Coryneform bacterium, and identifying a homologue of a gene derived from coryneform bacterium. Coryneform bacteria are useful for producing amino acids, nucleic acids, vitamins, saccharides and organic acids,
                                                                                                                                                                                                                                                                                                                                                                                                                                              organic
          amino acids, nucleic acids, particularly L-lysine. The
                                                                                                                                                                expression
                                                                                                                                                                           mutation
                                                                                                                                                                                                                                                                                                        03-AUG-2000;
                                                                                                                                                                                                                                                                                                                   16-DEC-1999;
07-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                   EP1108790-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Coryneform
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAG93071 standard;
                                                                                                       The present invention provides a number of nucleotide and protein
                                                                                                                              Claim
                                                                                                                                                                                        Novel
                                                                                                                                                                                                                                                                                                                                                     18-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                            20-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                       Corynebacterium
in the exemplification
                                                                                                                                                                                                                                                                                 (KYOW)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 glutamicum
                                                                                                                                                                                                                         2001-376931/40
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                                                                                                                              17;
                                                                                                                                                                polynúcleotides derived from Coryneform bacteria, ion point of a gene, measuring expression of a gene sion profile or pattern of a gene and identifying
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              118 NLTHSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWG
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                                                                                                                                                                                                                                                                                  КУОМА НАККО
                                                                                                                                                                                                                                                                                                                                                                                                                                               orm bacterium; a acid synthesis.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KAV-IIEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPEGS-----IL
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                                                                                                                              SEQ ID NO:
                                                                                                                                                               profile or pattern
                                                                                                                                                                                                                                                                                                       99JP-0377484.
2000JP-0159162.
2000JP-0280988.
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Senoh A,
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                                                                                                                                                                                                                                                                                                                                                                                                                        glutamicum.
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                                                                                                                             6825; 246pp +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                           amino
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Ikeda
          The present sequence
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da M,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                           acid
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Ozaki A;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                           synthesis; vitamin;
                                                                                                                             Sequence Listing;
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             protein
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fring homologous of
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                                                                                                                                                                 gene
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RESULT 14
AAB79594
ID AAB79
XX AAB79
AC AAB79
XX JO-AE
XX COXYI
XX COXYI
KW COXYI
KW SMP I
KW SMP I
KW Incole
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KW Incole
KW CATBC
KW COXYI
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XX COXYI
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Best Local S
Matches 69
                                                     08-JUL-1999;
08-JUL-1999;
08-JUL-1999;
08-JUL-1999;
08-JUL-1999;
09-JUL-1999;
09-JUL-1999;
09-JUL-1999;
                                                                                                                                                                     08-JUL-1999;
08-JUL-1999;
08-JUL-1999;
08-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                       Corynebacterium glutamicum; carbon metabolism and energy production; SMP protein; sugar metabolism and oxidative phosphorylation protein; fine chemical production; organic acid, proteinogenic amino acid; nonproteinogenic amino acid; purine base; pyrimidine base; nucleoside; nucleotide; lipid; saturated fatty acid; unsaturated fatty acid; diagnosis; corynebacterium diphtheriae; evolutionary study.
                                                                                                                                                                                                                                                                                                                                                                                            Corynebacterium glutamicum.
                                                                                                                                                                                                                                                                                                                                     04-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                WO200100844-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB79594 standard;
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                                                                                                                                                                                                                                  08-JUL-1999
                                                                                                                                                                                                                                                08-JUL-1999
                                                                                                                                                                                                                                                                                                        23-JUN-2000; 2000WO-IB00943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Corynebacterium glutamicum SMP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-APR-2001
                           14-JUL-1999
                                          09-JUL-1999
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQI 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -- QVVDERLVGHAPQSLGAHDAAALPLVALTAWESLFDRLG-----VTQSTTGTLLVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ĠĠSĠĠŶPSAĹĬQĿĀRAĹTĠĹKVVAŤASRPESQEWVTKĹĠĀHEŶĬĎ-ĤSKDĹSĖQĬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ILGFDAAGEVVAVGSQV-TLFNVGDK--VFYAGSNQ---RPGSNAEY------
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     337 AA;
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            99DE-1031428.
99DE-1031431.
99DE-1031434.
99DE-1031434.
99DE-1031550.
99DE-1031562.
99DE-1031634.
99DE-1032277.
99DE-1032230.
99DE-1032230.
99DE-1032394.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8.8%; Score 168; DI
29.4%; Pred. No. 8.20
tive 31; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein sequence SEQ ID
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AAG28581 standard; Protein;

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RESULT 15

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Matches 69
                                                                                                                                                                                                                                                                                                                                                                                energy production. The C. glutamicum SMP gene can be used in vectors (II) for expression in host cells and production or modulation of production of fine chemicals, such as, an organic acid, a proteinogenic or nonproteinogenic amino acid (preferred), a purine or pyrimidine base, a nucleoside, a nucleotide, a lipid, a saturated or unsaturated fatty acid, a diol, a carbohydrate, an aromatic compound, a vitamin, a cofactor, a polyketide, or an enzyme. The presence of (I) or SMP proteins (III) encoded by them are used for diagnosing the presence or activity of corymebacterium diphtheriae in a subject. (I), (II), (II) or host cells containing them are used to map genomes of organisms related to C. glutamicum, identify and localise C. glutamicum, sequences of interest, in evolutionary studies, in determining SMP protein regions required for function, in modulating SMP protein accivity, in modulating the metabolism of sugars, and in modulating high-energy molecule production in a cell if is a TMP Nandal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31-AUG-1999;
03-SEP-1999;
03-SEP-1999;
03-SEP-1999;
03-SEP-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New isolated Corynebacterium glutamicum nucleic acid encoding a metabolism and oxidative phosphorylation protein for production modulation of production of fine chemicals e.g. amino acids, carbohydrates or enzymes -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-061975/07.
N-PSDB; AAF71711.
                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                       in a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           metabolism and oxidative phosphorylation (SMP) proteins given in AAB79243 to AAB 79633 which are involved in carbon metabolism and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 20; Page 1144-1145; 1246pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-SEP-1999;
03-SEP-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAF71360 to AAF71750 encode the Corynebacterium glutamicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-SEP-1999;
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                                                                                                                                                                                                                                                                                     Similarity
                                                                                              THSTADE--ISEGPVK-NFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIW 176
                                                                                                                                                                 ILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNL
                                                                                                                                                                                                                                  SVPTTQKAVIIEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPE--GS
GGSGGVPSALIQLARALTGLKVVATASRPESQEWVTKLGAHEVID-HSKDLSEQI
                               GGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQI 231
                                                                  --QVVDERLVGHAPQSLGAHDAAALPLVALTAWESLFDRLG
                                                                                                                                 ILGFDAAGEVVAVGSQV-TLFNVGDK--VFYAGSNQ---RPGSNAEY------
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                                                                                                                                                                                                                                                                                                                                        337 AA;
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99DE-1042075.

99DE-1042087.

99DE-1042087.

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99DE-1042088.

99DE-1042095.

99DE-1042123.

99DE-1042125.
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Pred. No. 8.2e-07;
1; Mismatches 93;
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10-JUN-1999;
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14-JUN-1999;
16-JUN-1999;
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05-MAR-1999;
09-MAR-1999;
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Similarity 26.1%;
72; Conservative 4
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                                                                                                                                                                                              Score 167; DB 21;
Pred. No. 1.1e-06;
7; Mismatches 91;
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                                 224
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2: /cgn2_6/ptodata/1,

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US-08-439-009A-4
US-08-439-0103-374
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US-09-215-694-5
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Matches 103
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CURRENT APPLICATION NUMBER: US/09/215,694B
CURRENT FILING DATE: 1999-12-18
NUMBER OF SEQ ID NOS: 36
SOFTWARE: Patentin Ver. 2.0
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APPLICANT: Hutchinson, Charles R.
APPLICANT: Kennedy, Jonathan n.m.i
APPLICANT: Park, Cheonseok n.m.i
TITLE OF INVENTION: METHOD OF PRODUCING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
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   KVFSNGLDDVPALTEGIKEGKNKNVKYVARL 370
                                                                                                                                                                           LVYGGSTATATVTMQMLR-LSGYIPIAT-CSPHNFDLAKSRGAEEVFDYRAPNLAQTIRT
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                                    ------LGPTIFGEGSTWPAPYGRPGSEEERQFGEDLWRIAGQLVEDGRLVHHPL
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                                                                                                           YTKNNLRYALDCITNVESTTFCFAAIGRAGGHY-----VSLNPFPEHAATRKWVTTDWT
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US-09-143-681-2
US-09-154-750A-89
US-09-105-537-3
US-09-105-537-6
US-09-335-409-5
US-09-567-969-5
US-09-568-480-5
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US-09-568-480-5
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US-09-568-496-5
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Pred. No. 9.4e-19;
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                                                                       ---PASPEYHEATVKFVKFINPHLNNGDIHHMNI
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US-08-860-656B-3
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                                                                       SEQ ID NO 3
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PRIOR EILING DATE: 1995-12-23
NUMBER OF TO THE PRIOR EILING DATE: 1995-12-23
                                                                                    CURRENT APPLICATION NUMBER: US/08/860,656B CURRENT FILING DATE: 198-01-15 PRIOR APPLICATION NUMBER: PCT/EP95/05123 PRIOR FILING DATE: 195-12-23 NUMBER OF SEQ ID NOS: 18 SOFTWARE: PatentIn version 3.0
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APPLICANT: Barsoum:
TITLE OF INVENTION:
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               TYPE: PRT
ORGANISM: Human p43
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                                                  LENGTH:
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Barsoumian, Edward L.
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27.8%; Pred. No. 1.1e-07;
tive 39; Mismatches 96;
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Patent No.
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APPLICANT: MATSUYAMA
TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                        FILING DATE: 12-SEP-1996
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/311,328
                                ATTORNEY/AGENT INFORMATION:
NAME: Oblon, No. 5763236
REGISTRATION NUMBER: 24,
                                                                                    FILING DATE: 28-DEC-
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE: 02-AUG-
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CURRENT APPLICATION DATA:
                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER:
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REFERENCE/DOCKET NUMBER: 64
TELECOMMUNICATION INFORMATION:
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                                                                                                                                                                                                    APPLICATION NUMBER: JP 5
FILING DATE: 24-SEP-1993
                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE:
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                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      134 VKY-FKPGDEVW-----AAVPPWKQGTLSEFVVV-----SGNEVSHKPKSLT 174
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5. 5763236
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Y: U.S.A.
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                                                                                            02-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                            Floppy disk
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                                                                                                             JP 6-181308
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                                  24,618
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                   6423-001-0
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Pred. No. 1.1e-07;
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SEQUENCE CHARACTERISTICS:
LENGTH: 336 amin
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                                                                                                                                                                                                                                                                                                                                                                                                                                     Patent No.
                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                     ENERAL INFORMATION:
                         COMPUTER READABLE FORM:
MEDLUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
                                                                                                                                                                                                                                                                        TITLE OF INVENTION: NOVEL ENZYME, A METHOD TO PREPARE SAID TITLE OF INVENTION: ENZYME, A DNA SEGMENT ENCODING SAID ENZYME, TITLE OF INVENTION: CONTAINING SAID DNA SEGMENT AND A METHOD OF TITLE OF INVENTION: OPTICALLY ACTIVE ALCOHOL USING SAID ENZYME
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                CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES:
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                                                                                                                                     COUNTRY: U.S.A.
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APPLICATION NUMBER:
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(TY: Arlington
PATE: Virginia
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KAWADA, NAOKI
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Pred. No. 2.7e-07;
                                                                                                                                                                                      Davis
                                                                                                                                                                                      Highway, Suite
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Best Local Similarity
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TELEX: 248855 OPAT UR
INFORMATION FOR SEQ ID NO:
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NAME: Oblon, No. 6255092man F.
REGISTRATION NUMBER: 24,618
REFERENCE/DOCKET NUMBER: 6423-001-0
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 413-3000
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PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE: protein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 28-DEC-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 6
FILING DATE: 02-AUG-1994
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APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear
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NLGDLALREIRILGSFWGTTNDLDDVLKL---VSEGKVKPVVRSAKL 313
                                                                                                                                     LGADAVY--
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                                NNGDIHHMNIKVF-----SNGLDDVPALTEGIKEGKNKNVKYVARL 370
                                                                -ETLPESISPGS--
                                                                                                IESIPEEIRKDNVKIDITLLYRASGQEILLGATRFPASPEYHE--ATVKFVKFINPHL--
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                                                                 --FSACFDFVSVQAT-FDVCQKYVEPKGVIMPVGLGAPNLSF
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Pred. No. 2.7
                                                                                                                                                                                                     -GAGGLGGNATQVAK---AFGAKVTVLDKKKEARDQAKK
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RESULT 6
US-09-134-001C-3258
US-09-134-001C-3258
; Sequence 3258, Application US/09134001C
; Patent No. 6380370
; Patent No. 6380370
; GENERAL INFORMATION:
ITITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO STAPHYLOCOCCUS; TITLE OF INVENTION: EPIDERMIDIS FOR DIAGNOSTICS AND THERAPEUTICS
; FILE REFERENCE: GTC-007
; CURRENT APPLICATION NUMBER: US/09/134,001C
; CURRENT FILING DATE: 1998-08-13
; PRIOR APPLICATION NUMBER: US 60/064,964
; PRIOR APPLICATION NUMBER: US 60/055,779
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191 KHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIE-QIK-SKYPNLQHVIDAVG 246

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US-09-154-750A-81
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NUMBER OF SEQ ID NOS: 5674
SEQ ID NO 3258
LENGTH: 340
                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: FastSEQ for Windows Version SEQ ID NO 81
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Best Local
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                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: 60/059,153 PRIOR FILING DATE: 1997-09-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Kinzler, Kenneth
APPLICANT: Polyak, Kornelia
TITLE OP INVENTION: p53-Induced Apoptosis
FILE REFERENCE: 1107.75357
CURRENT APPLICATION NUMBER: US/09/154,750A
CURRENT FILING DATE: 1998-09-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: 60/079817
PRIOR FILING DATE:,1998-03-30
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APPLICANT: Kinzler, Kennet
                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            y Match 7.9%;
Local Similarity 27.8%;
hes 67; Conservative 3
                                                                                                                                                                                                                                             / Match 7.8%; Score 149.5; DB 4; Local Similarity 26.9%; Pred. No. 6.4e-07; nes 64; Conservative 34; Mismatches 105;
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                                                                                                                                                                                              GDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGP---EGSILGCDIAGTVV
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                                                                                                                   KLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNLTHSTADEISEG 130
                                                                                                                                                                GPENLYVKEVAKPSPGEGEVLLKVAASALNRADLMQRQGQYDPPPGASNILGLEASGHVA
  --LTLTQAAAIPEAWLTA-FQLLHLVGN
                                      PVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQQLIQVA 190
                                                                               ELGPGCQGHWKIGDTAMALLPGGGQ-----
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Pred. No. 4.4e-07;
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                                                                               -AQYVTVPEGLLM------PIPEG
  -VQAGDYVLIHAGLSGVGTAAIQLT 161
                                                                                                                                                                                                                                                                                  Length 322;
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; TYPE: PRT
; ORGANISM: Aspergillus terreus
US-09-215-694-10
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SEQ ID NO 4
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Patent No. 6297028
                                                         SEQ ID NO 10
LENGTH: 2532
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Best Local Similarity
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                                                                                                                                                                                                             APPLICANT: Wisconsin Alumni Resear
APPLICANT: Hutchinson, Charles R.
APPLICANT: Kennedy, Jonathan n.m.i
APPLICANT: Park, Cheonsook n.m.i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/08/860,656B
CURRENT FILING DATE: 1998-01-15
PRIOR APPLICATION NUMBER: PCT/EP95/05123
PRIOR FILING DATE: 1995-12-23
NUMBER OF SEQ ID NOS: 18
                                                                                              NUMBER OF SEQ ID NOS: 3
SOFTWARE: PatentIn Ver.
                                                                                                                                   TITLE OF INVENTION: METHOD OF PRODUCING ANTIHYPERCHOLESTEROLEMIC AGENTS FILE REFERENCE: 960296.95718 CURRENT APPLICATION NUMBER: US/09/215,694B CURRENT FILING DATE: 1999-12-18
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TYPE: PRT
ORGANISM: Mouse
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                                                                                                                                                                                                                                                                                                                                                                                                                                    276 NVG
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                                                                                                                                                                                                                                                                          Wisconsin Alumni Research Foundation
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27.6%; Pred. No. 6.1e-05;
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Patent No. 5958784
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Query Match
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                                                                                                                                                                                                                                                                                                                                  TELEX: none
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                           ORIGINAL SOURCE
                                                                                                                                                                                                                                                                                                                                                                           TELECOMMUNICATION INFORMATION:
TELEPHONE: (International) 41 1 632 2830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                           MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM: MEDIUM TYPE: 3.5 inc
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                                                                                                                                                                               FEATURE: Alcohol dehydrogenase, PUBLICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
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OPERATING SYSTEM: MacInto
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                                                                                                                                    AUTHORS:
                                                                                                                                                  AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US
FILING DATE: 03/25/92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE:
                                                                                      JOURNAL:
                                                                                                                      AUTHORS:
                                                                                                                                                                                                                ORGANISM:
                                                                                                                                                                                                                                              DESCRIPTION:
                                                                                                                                                                                                                                                                          POPOLOGY:
                                                                                                                                                                                                                                                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY: Switzerland
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                                                                                                                                                                                                                                                                                      amino acid
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                                                                                Alcohol dehydrogenases
Proceedings of the National Academy of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGGVGQAAIILAQLTGAEVFTTAGSETKRNLLIDKFHLDPDHVFSSRDSSFVDGIKTR 2024
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                                                                                                                    Jeffery, J.
                                                                                                                                                  Joernvall, H.
                                                                                                                                                                                                             Sacharomyces cerivisiae
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Score 121;
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Length 345;
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US-07-857-224B-93
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GENERAL INFORMATION:
                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                   OPERATING SYSTEM: MacInto SOFTWARE: Microsoft Word CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
ADDRESSEE: Steven A. Benner
STREET: Hadlaubstrasse 151
                                                         ORIGINAL SOURCE:
                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ZIP: (note: this is an international post code)
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch diskette, 1.4 Mb storage
                                                                                                   MOLECULE TYPE:
                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA: none TELECOMMUNICATION INFORMATION:
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FEATURE: Alcohol dehydr
PUBLICATION INFORMATION:
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                ORGANISM: Aspergillus
ATURE: Alcohol dehydrogenase,
                                                                                                                        TYPE: ami
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                                                                                                                                                             LENGTH:
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52; Mismatches 142
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: Baltz,
              COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                        COMPUTER READABLE FORM:
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 APPLICATION NUMBER:
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DATE: 1981
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CITY: Indianapolis
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                                                                                       MEDIUM TYPE:
                                                                                                                                          COUNTRY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PHADLSGYTHDGSFQEYA-----TADAV-----QAAHIPQGTDLAE 147
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                                                                                                                                                                                                                                                                                                                       Treadway, Patti J.
Turner, Jan R.
                                                                                                                                                                                                                                                                                                                                                                             Crawford, Kathryn P. Madduri, Krishnamurthy
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Proceedings of the National Academy of Sciences, USA
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                                                                                                                                                                                                                                                                                                                                                            Merlo, Donald J.
                                                                                                                                                                                                                                                                                                                                                                                                             Broughton, Mary C.
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                                                                                                                                                                                                                                                                                                                                                                                                                                 Baltz, Richard H.
                                 Patentin Release #1.0, Version
                                                                                                                                                                                                                Dow AgroSciences LLC Patent Department
                                                                                     Floppy disk
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                                                                                                                                                                                                                                                                                       Biosynthetic Genes For Spinosyn Insecticide
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US/09/036,987A
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Pred. No. 0.0011;
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APPLICANT: Broughton, Mary C
APPLICANT: Crawford, Kathryn P
APPLICANT: Madduri, Krishnamurthy
APPLICANT: Treadway, Patti J
APPLICANT: Turner, Jan R
APPLICANT: Waldron, Clive
TITLE OF INVENTION: Biosynthetic Genes For Sp
FILE REFERENCE: 50489 DIVI
CURRENT APPLICATION NUMBER: US/09/370,700
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                                     US-09-370-700-3
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Best Local Simi
Query Match
                                                                                                            SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 3, Application US/09370700 Patent No. 6274350
                                                                                                                         NUMBER OF SEQ ID NOS: 39
SOFTWARE: PatentIn Ver.
                                                                                                                                                            CURRENT FILING DATE: 1999-08-09
EARLIER APPLICATION NUMBER: US 09/36987
EARLIER FILING DATE: 1998-03-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                    TYPE: PRT ORGANISM: Saccharopolyspora spinosa
                                                                                       ENGTH: 2152
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           268 EVVPMT---IESIPEEIR-----KDNVKIDITL--LYRASGQEILLGAT
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 Score 115.5;
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 Length 2152;
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US-08-804-227C-10
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GENERAL INFORMATION:
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                                       Query Match
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                                                                                                                                                                TELEPHONE: 317-276-245
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
NAME: Plant, Thomas, G.
REGISTRATION NUMBER: 35,784
REFERENCE/DOCKET NUMBER: X-
                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES: 19
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Kubstoss, Stuart A.
APPLICANT: Rosteck, Paul R., Jr.
APPLICANT: Sutton, Kimberly L.
TITLE OF INVENTION: POLYKETIDE SYNTHASE GENES
                                                                                                                                                                                                                       TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: DeHoff, Bradley S. APPLICANT: Kuhstoss, Stuart F
                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: FILING DATE: Februa CLASSIFICATION: 435
                                                                                                                       LENGTH: 3724 amin
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                    OPERATING SYSTEM: MS
SOFTWARE: ASCI(DOS)
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   Local Similarity 23.
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                                                                                                               TOPOLOGY:
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                                                                                                                                               3724 amino acids
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                                                                                        peptide
                                                                                                                                                                                                                                                                                                                               February 21, 1997
                  5.9%; Score 114; DB 2; Length 3724; 23.7%; Pred. No. 0.13;
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48;
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   Mismatches
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Gaps
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RESULT 15
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    Query Match
Best Local Similarity
Matches 85; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                           CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: CANTRELL, PAUL R.
REGISTRATION NUMBER: 36,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
CORRESPONDENCE PAUL R. CANTRELL 1:
ADDRESSEE: PAUL R. CANTRELL 1:
STREET: LILLY CORPORATE CENTER
                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Microsoft Word 5.1 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: ROSTECK, Paul R., Jr.
TITLE OF INVENTION: PLATENOLIDE SYNTHASE GENE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: Macintosh
OPERATING SYSTEM: M
SOFTWARE: Microsoft
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET: LILLIANAPOLIS
                                                                                                                        TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                      TELEPHONE:
                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER:
                                                                                                                                                           LENGTH:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 132 VK---NFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQQLIQ 188
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5.9%; Score 114; DB 2; ilarity 23.7%; Pred. No. 0.13; Conservative 48; Mismatches 139
                                                                                                                        unknown
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Richardson, Mark A.
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12 IEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPEGSILGCDIAGTVVK 71 :: | : | : | | | | | | : | : | : | | | | | | : | : | : | : | | | | | | : | : | : | : | | | | | | | : | : | : | : | : | | | | | | : | : | : | : | | | | | | : | : | : | : | : | | | | | | : | : | : | : | : | : | : | | | | | | : | : | : | : | : | : | : | | | | | | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | :

당 성 당

유왕

2955	2955 LDGLALVPAPDAEAP-LEPGQVRVAVRAAGVNFRD-ALIALGMYPGEAEMGTEGAGTVVE 3012
72	72 LGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNLTHSTADEISEGP 131
3013	3013 VGPGV-TGVAVGDRVLGLWDGGLGPLCVADHRLLAP 3047
132	132 VKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQQLIQ 188
3048	3048 VPDGWSYAQAASVPAVFLSAYYGLVTLAGLRPGERVLVHAAAGGVGMAAVQ 3098
189	189 VAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQHVIDAVGSE 248
3099	3099 IARHLGAEVLATASPGKWDALRAMGITDDHLASS 3132
249	249 DSIPEAYKUT-ADSLPATLLEVVPMTIESIPEEIRKDNVKIDITL-LYRASGQEILLGAT 306
3133	3133 RTLDFATAFTGADGTSRADVVLNSLTKEFVDASLGLLRPGGRFLELGKT 3181
307	307 RFPASPEYHEATVKFVKFINPHLNNGDIHHMNIKVFSNG-LDDVPALTEGIK 357
3182	3182 DV-RDPERIAAEHPGVRYRAFDLNEAGPDALGRLLRELMDLFAAGVLHPLPVVTHDVR 3238

Search completed: June 17, 2003, 13:01:58 Job time : 21 secs

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Maximum DB
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length: 2000000000
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/cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
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US-09-738-626-6825

US-10-137-036-65

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US-09-738-626-3730

US-09-847-208-53

10 US-09-815-242-11926

US-09-815-242-11926

US-09-815-242-12251
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US-10-081-644-4

US-10-081-644-6

US-10-081-644-8

US-10-137-036-66
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Sequence 2, Appli
Sequence 6, Appli
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Sequence 10703, A
Sequence 10703, A
Sequence 65, Appl
Sequence 65, Appl
Sequence 53, Appl
Sequence 53, Appl
Sequence 53, Appl
Sequence 53, Appl
Sequence 5782, Ap
Sequence 6782, Ap
Sequence 5629, Ap
Sequence 17251, A
Sequence 2, Appli
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101	102	102.5	103	103	103.5	103.5	103.5	104.5	105.5	105.5	107.5	107.5	109.5	111	111	111	112	112	114.5	119	119.5	121	122	122.5	125.5
5.3	5.3	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.5	ა. ა	5.6	5.6	5.7	5.8	5.8	5.8	5. 8	5. 8	6.0	6.2	6.2	6.3	6.4	6.4	6.5
362	302	457	357	357	455	385	369	2563	1007	283	3816	356	342	350	346	346	336	264	1616	350	352	340	346	336	324
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US-09-947-150-2	US-09-815-242-11730	US-10-002-245-4	US-10-091-009-9	US-09-947-027-9	US-09-775-009-7	US-09-984-334-1	US-09-854-122-40	US-09-836-705-46	US-09-765-272-216	US-09-925-302-693	US-09-808-880-3	US-09-925-300-1326	US-09-815-242-10958	US-09-908-744-51	US-09-815-242-13656	US-09-815-242-13437	US-09-815-242-13832	US-09-815-242-11710	US-09-712-363-262	US-09-908-744-53	US-09-908-744-52	US-09-738-626-6285	US-09-815-242-10162	US-08-976-063C-20	US-09-815-242-5117
Sequence 2, Appli	e 11	Sequence 4, Appli	Sequence 9, Appli	Sequence 9, Appli	Sequence 7, Appli	Sequence 1, Appli	Sequence 40, Appl	Sequence 46, Appl	Sequence 216, App	Sequence 693, App	Sequence 3, Appli	Sequence 1326, Ap	Sequence 10958, A	Sequence 51, Appl	Sequence 13656, A	Sequence 13437, A	Sequence 13832, A	Sequence 11710, A	Sequence 262, App	Sequence 53, Appl	Sequence 52, Appl	Sequence 6285, Ap	Sequence 10162, A	Sequence 20, Appl	Sequence 5117, Ap

ALIGNMENTS

RESULT 1 US-10-081-644-2

```
Sequence 2, Application US/10081644

Publication No. US20020192782A1

GENERAL INFORMATION:
APPLICANT: Yamamoto, Hiroaki
APPLICANT: Kimoto, No. US20020192782A1ihiro
TITLE OF INVENTION: NOVEL ENONE REDUCTASES, METHODS FOR
TITLE OF INVENTION: PRODUCING SAME, AND METHODS FOR SELECTIVELY REDUCING A
TITLE OF INVENTION: USING THE REDUCTASES
TITLE OF INVENTION: USING THE REDUCTASES
FILE REFERENCE: 06501-10001
CURRENT FILING DATE: US/10/081,644
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: UF 2001-49363
PRIOR FILING DATE: 2001-02-23
NUMBER OF SEQ ID NOS: 29
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 2
SEQ ID NO 2
SEQ ID NO 2
TYPE: PRT
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Best Local
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les 370; Conserv
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AVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQH
                                                                                                                                                                             LGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNLT
                                                                                        HSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGAT
                                                                                                                                                LGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNLT
                                                                                                                                                                                                                                     MSVPTTQKAVIIEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPEGSI
                                                                HSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGAT
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Sequence 4, Application US/10081644

Publication No. US20020192782A1

ENERAL INFORMATION:

APPLICANT: Yamamoto, Hiroaki
APPLICANT: Kimoto, No. US20020192782A1ihiro

TITLE OF INVENTION: NOVEL ENOUE REDUCTASES, METHODS FOR SELECT

TITLE OF INVENTION: PRODUCING SAME, AND METHODS FOR SELECT

TITLE OF INVENTION: USING THE REDUCTASES

FILE REFERENCE: 06501-100001

CURRENT APPLICATION NUMBER: US/10/081,644

CURRENT FILING DATE: 2002-02-21

PRIOR APPLICATION NUMBER: US/001-49363

PRIOR FILING DATE: 2001-02-23

I PRIOR FILING DATE: 2001-02-23

I PRIOR FILING DATE: 201-02-23

I SOFTWARE: FastSEQ for Windows Version 4.0
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                                                                                                GKNKNVKYVARL 370
                                                                                                                                     NDVPFGTFTLPADPEYKEAAIKFIKFINPKINDGEIHHIPVKVYKNGLDDIPQLLDDIKH
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US-10-081-644-8
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; ORGANISM: Saccharomyces
US-10-081-644-6
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Publication No. US20020192782A1

GENERAL INFORMATION:
APPLICANT: Yamamoto, Hiroaki
APPLICANT: Ximoto, No. US20020192782A1ihiro
TITLE OF INVENTION: NOVEL ENONE REDUCTASES, METHODS FOR
TITLE OF INVENTION: PRODUCING SAME, AND METHODS FOR SELECTIVELY REDUCING A
TITLE OF INVENTION: CARBON DOUBLE BOND OF AN ALPHA, BETA-UNSATURATED KETONE
TITLE OF INVENTION: CARBON DOUBLE BOND OF AN ALPHA, BETA-UNSATURATED KETONE
                                                                                                                                                                                                                                                        Sequence 8, Application US/10081644
Publication No. US20020192782A1
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Best Local (
                                                                                         APPLICANT: Yamamoto, Hiroaki
APPLICANT: Kimoto, No. US20020192782A1ihiro
IITLE OF INVENTION: NOVEL ENONE REDUCTASES, METHODS FOR
IITLE OF INVENTION: PRODUCING SAME, AND METHODS FOR SELECTIVELY REDUCING A
TITLE OF INVENTION: CARBON-CARBON DOUBLE BOND OF AN ALPHA, BETA-UNSATURATED
TITLE OF INVENTION: USING THE REDUCTASES
FILE REFERENCE: 06501-100001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/10/081,644
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: JP 2001-49363
PRIOR FILING DATE: 2001-02-23
NUMBER OF SEQ ID NOS: 29
              CURRENT APPLICATION NUMBER: US/10/081,644
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: JP 2001-49363
PRIOR FILING DATE: 2001-02-23
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 66, Ap
Publication No
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Best Local Similarity
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SEQ ID NO 66
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                                                                                                                                                                                     CUMRENT FILING DATE: 2002-04-30
PRIOR APPLICATION NUMBER: PCT/NZ 01/00115
PRIOR FILING DATE: 2001-06-20
PRIOR APPLICATION NUMBER: U.S. No. US20030101478A1 09/724,624
PRIOR FILING DATE: 2000-11-28
PRIOR PILING DATE: 2000-06-20
PRIOR FILING DATE: 2000-06-20
PRIOR FILING DATE: 2000-06-20
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                                                                                                                                                                                                                                                                                                                                                      FILE REFERENCE: 11000.1036c4
CURRENT APPLICATION NUMBER: US/10/137,036
                         SOFTWARE:
                                                NUMBER OF SEQ ID NOS:
                                                              PRIOR APPLICATION NUMBER: U.S. NO. US20030101478A1 09/276,599
                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Wood, Marion
APPLICANT: Visser, Elizabeth
TITLE OF INVENTION: Compositions and Methods for the
TITLE OF INVENTION: Modification of Gene Expression
                                                                                                                                                                            PRIOR APPLICATION NUMBER: PCT/NZ00/00018
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                                                                                                              APPLICATION NUMBER: U.S. No. US20030101478A1 60/146,591 FILING DATE: 1999-07-30
                                                                                                                                                       FILING DATE: 2000-02-24
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     125 DEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQ 184
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 68 TVVKLGPNAS-TDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKS--NLTHSTA 124
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eagleton, Clare
Lasham, Annette
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No. US20030101478A1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  109;
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US-09-815-242-10703
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Best Local Similarity
                                        Query Match
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                                                                                                                                                                        NUMBER OF SEQ ID NOS:
SOFTWARE: FastSEQ for
                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR EILING DATE: 2000-03-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: Identification of TITLE OF INVENTION: Prokaryotes FILE REFERENCE: ELITRA.011A CURRENT APPLICATION NUMBER: US/09/815, CURRENT FILING DATE: 2001-03-21
                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 60/206,848
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Haselbeck, Robert
                                                                                                ORGANISM: Enterococcus
                    Match 13.8%;
Local Similarity 30.4%;
                                                                                                                                                                                                                                                                                                                                              FILING DATE: 2000-05-23
APPLICATION NUMBER: 60/207,727
FILING DATE: 2000-05-26
APPLICATION NUMBER: 60/242,578
                                                                                                                                                                                                                                                                                      FILING DATE: 2000-10-23
APPLICATION NUMBER: 60/253,625
FILING DATE: 2000-11-27
                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/257,931 FILING DATE: 2000-12-22
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TPQHTHPLLIWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDA 225
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Yamamoto, Robert T.
Xu, H. Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zyskind, Judith W. Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Trawick, John D.
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                                                                                                                                                                          for Windows Version
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Pred. No. 3.1e-15;
Score 265; DB 10;
Pred. No. 3.8e-15;
2; Mismatches 125;
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Matches 106;

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                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                               SOFTWARE: FastSEQ for Windows Version SEQ ID NO 10944
                                                                                                                                                                                                                  ORGANISM: Enterococcus - 09-815-242-10944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: 60/191,078 PRIOR FILING DATE: 2000-03-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 14110
                                                                                                                                                                                                                                                                                                                                                                    PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ITLE OF INVENTION: Identification of ITLE OF INVENTION: Prokaryotes
                                                                                                                                                                                                                                                                                ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LE REFERENCE: ELITRA.011A
                                                                                                                           Y Match 10.7%; Score 206; DB 10; Local Similarity 28.1%; Pred. No. 6.1e-10; nes 83; Conservative 39; Mismatches 87;
                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/269,308
                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 2000-12-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/253,625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/242,578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/207,727
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LING DATE:
SILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKN--GAFAEYARV--&PPLF 114
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FYKSNLTHSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPL 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QKAVIĮEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKH-----IAYKIGPEG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IVDDHLLAKIPETIS-----FEEAAAVPLAGLTAWQALFDHGHLK-----EGETV 157
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Xu, H. Howard
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Zyskind, Judith W.
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                                                                                                                                                                                                                                    faecalis
                                          ---EVPLPTIHDNDVLVKIIAASINPIDLKTKDGKVKMLLNYQM---P 60
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                                                                                                                                                                      Length 338;
                                                                                                                              Indels
                                                                                                                              86;
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PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR FILING DATE: 2000-04-07
PRIOR PELLING DATE: 2000-08-03
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SOFTWARE: Patentin ver. 3.0
SEQ ID NO 6825
LENGTH: 337
TYPE: PRT
RESULT 9
US-10-137-036-65
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US-09-738-626-6825
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CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
CURRENT FILING DATE: 2009-1377484
PRIOR APPLICATION NUMBER: JP 99/377484
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                                                                                  164
                                                                                                                                                                 113 --QVVDERLVGHAPQSLGAHDAAALPLVALTAWESLFDRLG-
                                                                                                                                                                                                   120 THSTADE--ISEGPVK-NFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIW 176
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                                                                                                                                                                                                                                                                                                                                                                                                            69;
                                                                                                                                                                                                                                               72 ILGFDAAGEVVAVGSQV-TLFNVGDK--VFYAGSNQ---RPGSNAEY------- 112
                                                                                                                                                                                                                                                                                     60 ILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNL 119
                                                                                                                                                                                                                                                                                                                                20 SIPSDQPDFLID-
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                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                  GGSGGVPSALIQLARALTGLKVVATASRPESQEWVTKLGAHEVID-HSKDLSEQI
                                                                                                                    GGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQI 231
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TATEISHI, NAOKO
SENOH, AKIHIRO
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OZAKI, AKIO
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OCHIAI, KEIKO
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                                                                                                                                                                                                                                                                                                                                                                                                            8.8%; Score 168; DB 9;
29.4%; Pred. No. 1.3e-06;
ative 31; Mismatches 93
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                                                                                                                                                                                                                                                                                                                              ---VEVDRPTPGPHDLLVHIEAVSINPVDTK-VRMRAGKQKHPK 71
                                                                                                                                                                                                                                                                                                                                                                                                          31;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 337;
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                                                                                                                                                                   -----VTQSTTGTLLVL 163
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Application US/10137036

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LENGTH: 117
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Best Local
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CURRENT FILING DATE: 2000-12-18
          PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
                                                                                                                PRIOR APPLICATION NUMBER: JP 99/377484 PRIOR FILING DATE: 1999-12-16
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PRIOR FILING DATE: 2001-06-20
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CURRENT FILING DATE: 2002-04-30
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TITLE OF INVENTION: Compositions and Methods for the
TITLE OF INVENTION: Wodification of Gene Expression
FILE REFERENCE: 11000.1036c4
                                                                           PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR FILING DATE: 2000-04-07
                                                                                                                                                                                               FILE REFERENCE:
                                                                                                                                                                                                              APPLICANT: OZAKI, AKIO
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
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APPLICANT: MIZOGUCHI, HIROS
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ORGANISM: Eucalyptus
OFTWARE: PatentIn ver.
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APPLICATION NUMBER: U.S.
FILING DATE: 1999-07-30
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OCHIAI, KEIKO
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Eagleton, Clare
Lasham, Annette
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ANDO, SEIKO
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TATEISHI, NAOKO
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Pred. No. 3.7e-06;
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RESULT 11
US-09-908-744-69
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; TYPE; PRT
; ORGANISM: Corynebacterium glutamicum
US-09-738-626-3730
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                                                                                                                                                                    PRIOR APPLICATION NUMBER: US 09/488,581
PRIOR FILING DATE: 2000-01-21
PRIOR PELICATION NUMBER: US 08/790,585
PRIOR FILING DATE: 1997-01-29
PRIOR APPLICATION NUMBER: US 08/368,395
PRIOR FILING DATE: 1995-01-03
PRIOR FILING DATE: 1995-01-03
PRIOR FILING DATE: 1993-08-24
PRIOR FILING DATE: 1993-08-24
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                                                                       SOFTWARE: PE
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Best Local Similarity
ORGANISM: Bacillus halodurans -09-908-744-69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: Manufacture of Five-Carbon Sugars and Sugar Alcohols FILE REFERENCE: 1427.001.005 CURRENT APPLICATION NUMBER: US/09/908,744 CURRENT FILING DATE: 2001-07-20
                                                                                                                  NUMBER OF SEQ ID NOS:
                                                                                                                                   PRIOR FILING DATE: 1992-11-05
                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: PCT/FI01/00051
PRIOR FILING DATE: 2001-01-22
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                                    TYPE: PRT
                                                                                                                                                     APPLICATION NUMBER: US 07/973,325
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 HSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPOHTHPLLIWGGAT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67;
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                                                         352
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                                                                                            PatentIn Ver.
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vo. US20030068791A1
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Aristidou Aristos
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Koivuranta Kari
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Pred. No. 5.4e-05;
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US-09-847-208-53
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SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 53
LENGTH: 350
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APPLICANT: Saxon, Andrew
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                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
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Best Local Similarity
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CURRENT FILING DATE: 2001-05-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Zhang, Ke
APPLICANT: Zhu, Daocheng
TITLE OF INVENTION: FUSION MOLECULES AND TREATMENT O
TITLE OF INVENTION: IGE-MEDIATED ALLERGIC DISEASES
FILE REFERENCE: UC67.002A
                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
ORGANISM: Candida albicans
p9-847-208-53
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                                 198 KIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQHVIDAVGSEDSIPEAYKV 257
                                                                                                    150 VS--LCHHLG------SKMEWHPSTPQHTHPLLIWGGATAVGQQLIQVAKHINAYT 197
                                                                                                                                         115 GEADLSGYTHDGSFEQYA----
 201 VAIDGGDEKGE-FVKSLGAEAYVDF
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                                                                                                                                                                                                                                                                                   IPKTQKAVVFDTNGGQLVYK-DYPVPTPKPNELLIHVKYSGVCHTDLHARKGDWP-LATK 62
                                                                                                                                                                                                                                                                                                                    VPTTQKAVIIE--GDKAVVKTDVSVPELKEGTALVKVE----AVAGNPTDWKHIAYK 53
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                                                                     VAPILCAGVTVYKALKTADLAAGQW--
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22.4%; Pred. No. 0.00019;
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Pred. No. 0.00016;
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                                                                                                                                         -TADAV-----QAAKIPAGTDLAN
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RESULT 14
US-09-738-626-6782
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RESULT 13
US-09-815-242-11926
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US-09-815-242-11926
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SEQ ID NO 11926
LENGTH: 337
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Best Local :
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APPLICANT:
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CURRENT APPLICATION NUMBER: US/09/815,
CURRENT FILING DATE: 2001-03-21
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
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APPLICATION NUMBER: 60/257,931
FILING DATE: 2000-12-22
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FILING DATE: 2000-05-26
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                                               194 NAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIK 232
                                                                                               118 DFAQAAALPLTTITA----WELLFERLQIAEGKADQGQSLLVVGAAGGVGSILVQLARQL
                                                                                                                                          134 NFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQQLIQVAKHI 193
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174 TGLNVIGTASRAETQAWVRDLGAHHVID-HGKPLAEELK
                                                                                                                                                                                                  79 SL-FRPGDRVW---YAGDITRP--GSNSELHRV-
                                                                                                                                                                                                                                             77 STDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNLTHSTADEISEGPVK--- 133
                                                                                                                                                                                                                                                                                             20 DIELPEPTPGPRDLLVEVRAISVNPVDTK-VRQRAQPEAGQAKVLGWDAAGVVRAVGSEV 78
                                                                                                                                                                                                                                                                                                                                        22 DVSVPELKEG--TALVKVEAVAGNPTDWKHIAYKIGPE---GSILGCDIAGTVVKLGPNA
                                                                                                                                                                                                                                                                                                                                                                                        h 7.3%; Score 139.5; DB Similarity 26.9%; Pred. No. 0.0004; 59; Conservative 35; Mismatches 9
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Wall, Daniel
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Zyskind, Judith W.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for Windows Version
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Best Local Similarity
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US-09-738-626-6782
                                                                                                                                                                                                US-09-815-242-5629
                                                                                                                                          Sequence 5629, Application US/09815242 Patent No. US20020061569A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: PatentIn ver. 3.0 SEQ ID NO 6782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 6782, Application US/09738626 Publication No. US20020197605A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR FILING DATE: 2000-04-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 7059
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                                                                                   APPLICANT: Haselbeck, Robert APPLICANT: Ohlsen, Kari L. APPLICANT: Zyskind, Judith W.
APPLICANT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         119 LTHSTA---DEISEGPVKNFESAASLPVSLTTAGVSLCHHLGS-KMEWHPSTPQHTHPLL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   59 SILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSN
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                                                                                                                                                                                                                                                                                                                                                    LPDGVDVVFDLVGGEALRVVAPLAKNPAHVISAADAATVGELGGQVLRRTPEMVGQITGV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                               IWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSK 234
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TATEISHI, NAOKO
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                           Carr, Grant
                                                  Trawick, John D.
             Yamamoto,
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Pred. No. 0.00095;
2; Mismatches 122;
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LENGTH: 333
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Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
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PRIOR FILING DATE: 2000-12-2
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/09/815
CURRENT FILING DATE: 2001-03-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: Identification of Essential Genes TITLE OF INVENTION: Prokaryotes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ ID NOS: 14110
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT
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Local Similarity 25.2%;
les 74; Conservative 38
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APPLICATION NUMBER: 60/242,578
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APPLICATION NUMBER: 60/206,848
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GHITTIVAFNEDQDLNALKLKSITFTHEFMFARP--IHRTPDMIKQHEYLEDIT
                                                                                         SRQETTEWCEKMGADIVLN-HREDLVLQFKEKEIPLVDYIFCTYNTDLYYNTMIELIKPL
                                                                                                                                                                                                                          VSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQQLIQVAKHINAYTKIVTV 202
                                                                                                                                                                                                                                                                                                                 GFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNLTHSTADE--ISEGPVK-NFESAASLP 142
                                          QHVIDAVG-SEDSIPEAYKVTADSLPATLLEVVPMTIESIPEEIRKDNVKIDIT
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Pred. No. 0.0022;
8; Mismatches 126;
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Search completed: June 17, Job time : 140 secs 2003, 13:08:00

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Result
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Perfect score:
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                  Score
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Gapop 10.0 , Gapext 0.5
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Match Length
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Listing first 45 summaries
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Copyright (c) 1993 - 2003 Compugen Ltd.
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 DB
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338	447	328	348	388	325	325	336	348	345	326	365	328	10223	8563	328
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H90403	T35960	医83504	T49047	C75441	T05166	T40264	AH0201.	S32521	S57611	T36504	S50409	E70695	T30225	T30226	T21985
alcohol dehydrogen	crotonyl-CoA reduc	probable oxidoredu	quinone reductase-	probable NADPH qui	quinone reductase	zinc-binding dehyd	probable Zinc-bind	alcohol dehydrogen	probable NADPH2:qu	probable quinone o	hypothetical prote	probable oxidiredu	polyketide synthas	polyketide synthas	hypothetical prote

ALIGNMENTS

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QY 62 GCDIAGTVVKLGENA-STDLKVGDTGFGFVHGASQTDFKNGAFAEYARVYPPLFYKSN 118	Query Match 55.5%; Score 1065.5; DB 2; Length 376; Best Local Similarity 54.0%; Pred. No. 2.1e-72; Matches 201; Conservative 59; Mismatches 109; Indels 3; Gaps 2; Qy 2 SVPTTQKAVIIEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPEGSIL 61 :	A A MAL'S EMBL: Z46843; NID:g861113; PID:g854503 reau, F.; Jacquet, M., 1995 , 1995 segment of yeast chromosome XIV, which cont S59241; MUID:96109932; PMID:8619318 Cid sequence not shown; translation not sho A EMBL: Z46843; NID:g861113; PIDN:CAA86891.1; IDE SEGMENCE was submitted to the EMBL Date Ide Segmence was submitted to the EMBL Date	RESULT 1 S55149 hypothetical protein YNL134c - yeast (Saccharomyces cerevisiae) hypothetical protein JTF376; hypothetical protein N1214; hypothetical C;Species: Saccharomyces cerevisiae C;Date: 08-Jul-1995 #sequence revision 01-Sep-1995 #text_change 19-Apr-2002 C;Accession: S55149; S59254; S63079 R;Mallet, L.; Bussereau, F.; Jacquet, M. submitted to the EMBL Data Library, November 1994 A;Accession: A 43.5 kb fragment of the chromosome XIV. A;Reference number: S55136 A;Accession: S55149

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A;Experimental source: strain S288C (AB972)
C;Genetics:
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A; Residues: 1-376 < KIR>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      submitted to the EMBL Data Library, March 199A;Description: The sequence of S. cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 2
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Map position: 12R
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Species: Saccharomyces cerevisiae Date: 30-Nov-1995 #sequence_revision
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gene: MIPS:YLR460c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Accession: S59418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           thetical protein YLR460c - yeast (Saccharomyces cerevisiae)
                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
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                                                                                                                                                                                                             178
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                                                                                                                                                                                                          GATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPN
                                                                                                                                                                                                                                                                                                                                                                                          MSVPTTQKAVIIEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPEGSI
                                                                                                                                                                                                                                                                                                    LGCDAAGQIVKLGPAVNPKDFSIGDYIYGFIHGSSVRFPSNGAFAEYSAISTVVAYKSPN 122
                                                                                                                                                                                                                                                                                                                            LGCDIAGTVVKLGPNAS-TDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKS--
                                                                                                                                                                                                                                                                                                                                                                VAIPETMKAVVIEDGKAVVKEGIPIPELEEGFVLIKTLAVAGNPTDWAHIDYKIGPQGSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GHEVPFGNITLPADSEARKAAIKFIKFINPKINDGQIRHIPVRVYKNGLCDVPHILKDIK
                                                                           GQEILLGATRFPASPEYHEATVKFVKFINPHLNNGDIHHMNIKVFSNGLDDVPALTEGIK 357
                                                                                                                                                  LOHVIDAVGSEDSIPEAYKVTADSLPATLLEVVPMTIESIPEEIRKDNVKIDITLLYRAS
                                                                                                                                                                                                                                          ELKFLGEDVLPAGPVRSLEGVATIPVSLTTAGLVLTYNLGLDLKWEPSTPQRKGPILLWG
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   YGKNSGEKLVAVL
                             EGKNKNVKYVARL 370
                                                                                                                    ISYLVDCVANQDTLQQVYKCAADKQDATIVELKNLTEENVKKENRRQNVTIDIIRLYSIG
                                                                                                                                                                                GATAVGQSL1QLANKLNGFTK11VVASRKHEKLLKEYGADELFDYHD1DVVEQ1KHKYNN
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51.7%;
 375
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                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1021.5; DB 2;
Pred. No. 4.2e-69;
7; Mismatches 110;
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A; Residues: 1-368 <GRI>
A; Cross-references: EMBL:X59720; NID:g1907116;
C; Genetics:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 KAVIIEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPEGSILGCDIAG
                                                                                                                                                                                                                                                       QLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQHVIDA
                                                                         GITFPADPEARRAATEFVKFINPKISDGOIHHIPARVYKNGLYDVPRILEDIKIGKNSGE
                                                                                                                                                     VANQNTLQQVYKCAADKQDATVVELTNLTEENVKKENRRQNVTIDRTRLYSIGGHEVPFG
                                                                                                                                                                                                                             SLIQLANKINGFTKIIVVASRKHEKLIKEYGADQLFDYHDIDVVEQIKHKYNNISYLVDC
                                                                                                                                                                                                                                                                                                         DVLPAGPVRSLEGAATIPVSLTTAGLVLTYNLGLNLKWEPSTPORNGPILLWGGATAVGO
KLVAVL
                                       KYVARL
                                                                                                           ATREPASPEYHEATVKFVKFINPHLNNGDIHHMNIKVFSNGLDDVPALTEGIKEGKNKNV 364
                                                                                                                                                                                 VGSEDSIPEAYKVTADSLPATLLEVVPMTIESIPEEIRKDNVKIDITLLYRASGQEILLG
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Pred. No. 1.2e-68;
0; Mismatches 109;
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RESULT 4 AE1151

A;Authors: Kreft, J.; Kuhn, M.; Kunst, F.; Kurapkat, G.; Madueno, ok, C.; Schlueter, T.; Simoes, N.; Tierrez, A.; Vazquez-Boland, J. A;Tille: Comparative genomics of Listeria species.
A;Reference number: AB1077; MUID:21537279; PMID:11679669 oxidoreductase homolog lmo0613 [imported] - Listeria monocytogenes C;Species: Listeria monocytogenes C;Species: Listeria monocytogenes C;Date: 27-Nov-2001 #text_change 14-C;Date: 27-Nov-2001 #sequence_revision 27-Nov-2001 #text_change 14-C;Accession: AEII51 R;Glaser, P.; Frangeul, L.; Buchrieser, C.; Amend, A.; Baquero, F.; Dminguez-Bernal, G.; Duchaud, E.; Durand, L.; Dussurget, O.; En A; Status: preliminary A;Reference number: AB1077; A;Accession: AE1151 Science 294, 849-852, 2001 D.; Jones, L.M.; Karst, #text_change 14-Dec-2001 ю, в.; J.A.; F.; Berche, P.; Bloecker; Entian, K.D.; Fsihi, H. (strain Maitournam, Voss, H.; EGD m, A.; Ma Wehland,

lmo0613

C;Superfamily: alcohol dehydrogenase;

long-chain alcohol dehydrogenase homology

A; Experimental & C; Genetics:
A; Gene: lmo0613 A; Cross-references: GB:NC_003210; A; Experimental source: strain EGD-A; Molecule type: DNA A; Residues: 1-313 <GLA> PIDN:CAC98691.1; PID:g16410002; GSPDB:GN00177

RESULT w ٠;

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; Dominguez-Bernal, G.; Duchaud, E.; Durand, L.; Dussurget, O.; Entian, K.D.; Fs D.; Jones, L.M.; Karst, U. Science 294, 849-852, 2001
A;Authors: Kreft, J.; Kuhn, M.; Kunst, F.; Kurapkat, G.; Madueno, E.; Maitournam, ok, C.; Schlueter, T.; Simoes, N.; Tierrez, A.; Vazquez-Boland, J.A.; Voss, H.; W. A;Title: Comparative genomics of Listeria species.
A;Reference number: AB1077; MUID:21537279; PMID:11679669
A;A;Cesssion: AF1510
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R;Glaser, P.; Frangeul, L.; Buchrieser, C.; Amend, A.; Baquero, F.; Berche, P.;
Pominquez-Bernal, G.; Duchaud, E.; Durand, L.; Dussurget, O.; Entian, K.D.; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Species: Listeria innocua
C;Date: 27-Nov-2001 #sequence_revision 27-Nov-2001 #text_change 14-Dec-2001
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Best Local (
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tatus: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                 ross-references: GB:AL592022; PIDN:CAC95854.1; PID:g16413062; GSPDB:GN00178
xperimental source: strain Clip11262
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sidues: 1-313 <GLA>
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                                                                                                                                                                                                                                                      KAVIIE---GDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWK----HIAYKIGPE-GS
                                                                                                                                                                                   ILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNL 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EQLKELGKLLANKTIKPIVGAT-FPFSEKGVFDAHALSETHHAVGKIVISFN 312
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LAPLPEGIS-----PDEAASIPLAGLTAWQALFDH--AKL-----QKGEKVLIHAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           THSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGA 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNL 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KAVIIE----GDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWK----HIAYKIGPE-GS
                                                                                                                                               ILGWDVAGVISEVGEGV-TDWKVGDEVF----ARPETTRFGTYAEYTAV-----DDHL 109
                                                                                                                                                                                                                        ILGWDVAGVISEVGEGV-TDWKVGDEVF----ARPETTRFGTYAEYTAV-----DDHL
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GGVGTLAÍQLAKYAGA--EVITTASAKNHELLKSLGADQVIDYKEV----NFKDVLSDID
                         TAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNIQ
                                                                        LAPLPEGIS-----FEEAASIPLAGLTAWQALFDH--AKL-----
                                                                                                            THSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGA 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
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29.0%; Pred. No. 2.8e-12;
cive 56; Mismatches 120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --LLGATRFP-----ASPEYHEATVKFVKFIN 326
                                                                                                                                                                                                                                                                                                 60; Mismatches 118;
                                                                                                                                                                                                                                                                                                                     Score 260; DB 2;
Pred. No. 5.5e-12;
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A;Cross-references: EMBL:U20808; NID:g1184120; PID:g1184121
A;Experimental source: strain Rwilcz cv. Berken; tissue type hypocotyl; clone M
C;Superfamily: alcohol dehydrogenase; long-chain alcohol dehydrogenase homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Reference number: Z17176
A; Accession: T10824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      submitted to the EMBL Data Library, February 1995 A;Description: Molecular cloning and characterization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R; Chen, J.; Wu, D.; Witham, F.H.; Heuser, C.W.; Arteca, R.N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          auxin-induced protein (clone MII-3) - mung
C;Species: Vigna radiata (mung bean)
C;Date: 16-U1-1999 #sequence_revision 16-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Status: preliminary; translated from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Residues: 1-317 < CHE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 101; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
DLLEKLRPYLENGO---VKPILDPKSPFPFSQTVEAFSYLKTNRATGKV
                                                   VKIDITLLYRASGQEILLGATRFPASPEYHEATVKFVKFINPHLNNGDI
                                                                                                                                                              QIKSKYPNLQHVIDAVGSED----SIPEAYKVTADSLPATLLEVVPMTIESIPEEIRKDN
                                                                                                                                                                                                                                                          -HPLLIWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIE
                                                                                                                                                                                                                                                                                                                                                                                     PLFYKSNLTHSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHT- 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KIGPEGSILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKN-GAFAEYARVYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HVIDAVGSEDSIPEAYKVTADSLPATLLEVVPMTIESIPEEIRKDNVKIDITLLYRASGQ
                                                                                                          ELAEKF---DVVYDAVGQSERALKSVKEGGKV-----VTIVAPATPPAIPFLLTSDG
                                                                                                                                                                                                                       GKSILVLGGAGGVGSLVIQIAKHIFGASKIAATGSTGKLELFENLGTDLPIDYTKEN-FE
                                                                                                                                                                                                                                                                                                                                  KV-----LAHKPSN------LSFVEAASLPLAIITAYQGL------ETAQFSV
                                                                                                                                                                                                                                                                                                                                                                                                                                            IDSPLPTAPGYDVAGVVVKVG-NQVKKFQVGDEVYGDINEVTLDHPKTIGSLAEYTAVEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIPSHMRAWIYSEYGNIEEVLKFDPNVPTPHLMENQVLIKVVAAAINPVDYKRALGHFKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SVPTTQKAVIIE---GDKAVVKTD--VSVPELKEGTALVKVEAVAGNPTDWK----HIAY 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QLKKLGELLANKTVKPIVGAT-FPFSEKGVFDAHALSETHHAVGKIVISFN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 259; DB 2; Length 317; Pred. No. 6.7e-12; 9; Mismatches 143; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GB/EMBL/DDBJ
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R;Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, C Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; ansen, N.F.; Hughes, B.; Hulzar, L.
Nature 408, 816-820, 2000
A;Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E C.A.; Li, J.H.; Li, Y.; Lin, X.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H. Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H. A;Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H. ker, M.; Wu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W. A;Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis. quinone oxidoreductase-like protein At1g23740 - Arabidopsis thaliana (;Species: Arabidopsis thaliana (mouse-ear cress) C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 09-Nov-2001 C;Accession: E86371 Khaykin, E.; Maiti, R.; Ma H.; Tallon, , O.; Alon .; Dewar,

Alonso, war, K.,

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A;Reference number: A86141; MUID:21016719; PMID:11130712
A;Accession: E86371
A;Status: preliminary
A;Molecule type: DNA
A;Residuse: 1-309 <STO>
A;Cross-references: GB:AE005172; NID:g4056456; PIDN:AAC98
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      zinc-binding oxidoreductase Atu5324 [imported] - Agrobacterium tumefaciens (strain C58, C;Species: Agrobacterium tumefaciens C;Species: Agrobacterium tumefaciens C;Date: 11-Jan-2002 #sequence_revision 11-Jan-2002 #text_change 01-Feb-2002 C;Accession: AF3199 R;Wood, D.W.; Setubal, J.C.; Kaul, R.; Monks, D.; Chen, L.; Wood, G.E.; Chen, Y.; Woo, erage, G.; Gillet, W.; Grant, C.; Guenthner, D.; Kutyavin, T.; Levy, R.; Li, M.; McClel
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Science 294, 2317-2323, 2001
A;Authors: Yoo, H.; Tao, Y.; Bidd
ster, E.W.
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                                                                                                                                                                                                                                                                                                                                                Residues: I-353 <KUR>;Cross-references: GB:AE008687; PIDN:AAL46012.1; PID:g17743768;
Experimental source: strain C58 (Dupont)
                                                                                                                                                                                                                                                                                      Genome: plasmid superfamily: alcohol dehydrogenase; long-chain alcohol dehydrogenase
                                                                                                                                                                                                                                                                                                                                   Gene: Atu5324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title: The Genome of the Natural Genetic Engineer Seference number: AB2577; PMID:11743193
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Best Local (
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                                           PPEWQPEPTFPLILGTDVSGVVAAIGDGVSA-FSVGDEVFAMVRFPEDLMQGSGAYAEYV
                                                                                                                        EAMMIEMMKAVRLHEFGGPEVLSYEEAPRPVAASGEVLVRVHAAGINPPDLYLRDGYRTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQQLI
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKI----GPEGSILGCDIAGTVV
  RVYPPLFYKSNLTHSTADEISEGPVK-NFESAASLPVSLTTAG---VSLCHHLGSKME--
                                                                               AYKIGPEGS---ILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYA
                                                                                                                                                                    KAVIIEGDKAVVKTDVSVPEL-
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQHVIDAVGS
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                                                                                                                                                                                                                              11.4%;
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                                                                                                                                                                                                        Score 218; DB 2;
Pred. No. 9.4e-09;
6; Mismatches 106
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Pred. No. 1.5e-11;
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A;Accessum: Vor.
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-324 <STO>
A;Cross-references: GB:AP001508; GB:BA000004; NID:g10172890;
                                                                                                                                                                                                  RESULT 10
C70418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                quinone oxidoreductase BH0363 [imported] - Bacillus halodurans (strain C;Species: Bacillus halodurans C;Date: 01-Dec-2000 #sequence_revision 01-Dec-2000 #text_change 15-Jun-C;Accession: C83695 R;Takami, H; Nakasone, K; Takaki, Y; Maeno, G.; Sasaki, R.; Masui, N
                                                                                                                 probable alcohol dehydrogenase (EC 1.1.1.-) - Aquifex aeolicus
C;Species: Aquifex aeolicus
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
C;Accession: C70418
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C83695
A;Title: The complete genome of the hyperthermophilic bacterium Aquifex aeolicus. A;Reference number: A70300; MUID:98196666; PMID:9537320 A;Accession: C70418
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A;Title: Complete genome sequence of the alkaliphilic bacterium
A;Reference number: A83650; MUID:20512582; PMID:11058132
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 AVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQH 240
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132 TV---
                                                                                                 G.; Warren,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59 PGLDAAGYVEKVGREVS-DIQVGQRVIAF---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FPIPDEI-----NFRTAAASPI-----VSFLSH----RLLYNVAQMERGESVLVHAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGAT 180
                                                                                                                                                                                                                                                                                 SCRSVLGFSLGTTR-KCKPHLLKETARHVL---PYLASGKL
                                                                                                                                                                                                                                                                                                                      SGQEIL---LGATRFPASPEYHEATVKFVKFINPHLNNGDI
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                                                                                                   P.V.;
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                                                                                                   Gaasterland,
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                                                                                                   Young,
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                                                                                                   W.G.; Lenox,
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A;Status: preliminary; nucleic acid sequence not shown; translation not A;Molecule type: DNA A;Molecule type: DNA A;Residues: 1-343 <AQF> A;Residues: 1-343 <AQF> A;Cross-references: GB:AE000736; NID:g2983763; PIDN:AAC07327.1; PID:g29 A;Experimental source: strain VF5 C;Genetics: A;Gene: adh1 C;Guperfamily: alcohol dehydrogenase; long-chain alcohol dehydrogenase C;Keywords: NAD; oxidoreductase C;Keywords: NAD; oxidoreductase P;26-332/Domain: long-chain alcohol dehydrogenase homology <LADH>
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A;Title: Complete genome sequence of the alkaliphilic bacterium Bacill A;Reference number: A33650; MUID:20512582; PMID:11058132
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DIECUIE type: DNA,
Residues: 1-322 <STO>
Residues: GB:AP001510; GB:BA000004;
Cross-references: GB:AP001510; GB:BA000004;
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           173
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                                                                                                                                                                            KIGPEGSILGCDIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPP
                                                                                                                                                                                                                          KAVVYEQYGDPSVLKVMDVPKPTIGPTDVLINVKASGTNPVDTYFRKGIRQVEQFPHIPH
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           LLIWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIK
                                                                                           LFYKSNLTHSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHP
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                                                                                                                                      ---FDVAGEIVEIGSDE-NWQVGDRVWA----TNIK-GASAEYALIPEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10.1%;
28.7%;
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27.0%;
                                                   -----SYEEGAALAMTFMTAHLSL-----FDRGRLQKGET
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                                                                                                                                                                                                                                                                                                             44;
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                                                                                                                                                                                                                                                                                                           Score 187.5; DB 2
Pred. No. 1.6e-06;
4; Mismatches 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 193; DB 1;
Pred. No. 6.8e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -PARNVIKKP-KNLSFEEAASYPLTFLT----VWNALVDK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NID:g10173440; PIDN:BAB04654.1; GSPDB:GN0
                                                                                                                                                                                                                                                                                                                                                   DB 2;
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                                                                                                                                                                                                                                                                                                             83;
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C;Accession: B90457
R;She, Q.; Singh, R.K.; Confalonieri, F.; Zivanovic, Y.; Allard, G.; Awayez, M.J.;
Jong, I.; Jeffries, A.C.; Kozera, C.J.; Medina, N.; Peng, X.; Thi-Ngoc, H.P.; Redc
arrett, R.A.; Ragan, M.A.; Sensen, C.W.; Van der Oost, J.
submitted to GenBank, April 2001
A;Description: Sulfolobus solfataricus complete genome.
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Clacession: AH3214
Clacession: AH3214
R; Wood, D.W.; Setubal, J.C.; Kaul, R.; Monks, D.; Chen, L.; Wood, G.E.; Chen, Y.; Woo, I R; Wood, D.W.; Setubal, J.C.; Kaul, R.; Monks, D.; Kutyavin, T.; Levy, R.; Li, M.; McClell; Karp, P.; Romero, P.; Zhang, S.
Science 294, 2317-2323, 2001
A; Authors: Yoo, H.; Tao, Y.; Biddle, P.; Jung, M.; Krespan, W.; Perry, M.; Gordon-Kamm,
                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Gene: Atu5447
A;Genome: plasmid
C;Superfamily: alcohol dehydrogenase; long-chain alcohol dehydrogenase
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AH3214
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A; Residues: 1-334 < KUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Reference number:
A; Accession: AH3214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Title: The Genome of the Natural Genetic Engineer Agrobacterium A; Reference number: AB2577; PMID:11743193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C;Species: Agrobacterium tumefaciens
C;Date: 11-Jan-2002 #sequence_revision 11-Jan-2002 #text_change 01-Feb-2002
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: GB:AE008687; PIDN:AAL46134.1; PID:g17743901; GSPDB:GN00188
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Best Local
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                                                                               203
                                                                                                                                                                                                171
  263
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                                                                                                                                                                                                                                                                                                                                                       55 GPEGSILGCDIAGTYVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLF 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----ESVVDAVGK----
GVLKKASRRGV--DYSFLFMRAEGQQL
                                                                                                                  IKSKYPNLQHVIDAVGSEDSI------
                                                                                                                                                                                            HPLLIWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQ
                                                                                                                                                                                                                                                                              YKSNLTHSTADEISEGPVKNFESAASLPVSLTTAGVSLCH-----HLGSKMEWHPSTPQHT 170
                                                                                                                                                                                                                                                                                                                  --PPFILGHDLAGTVIRVGANV-RQFKTGDEVF----ARPRDHRVGTFAEMIAV----
                                                                                                                                                                                                                                                                                                                                                                                              KAFVV--DKYKKKGPLRLADMPNPVIGANDVLVRIHATAINLLDSKVRDGEFKLFLPYR-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SKYPNLOHVIDAVGSEDSIPEAYKVTADSLPATLLEVVPMTIE-SIPEEIRKD
                                    SIPEEIRKDNVKIDITLLY-RASGQEI 301
                                                                             VLSGYDLVLNSQDAKTLEKSLNVLRPGGKLISISGPPDVAFARSLKLNPLLRFVVRMLSR
                                                                                                                                                       --VFIQAGSGGVGTFAIQLAKHLGA--TVATTTSAANAELVKSLGADVVIDYKTQD-FEQ
                                                                                                                                                                                                                                       ----DAADLALKPTSLSMEQAASIPLVGLTAWQALIEVGKVKSGQK-------
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Pred. No. 1
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  287
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1.8e-06;
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                                                                                                                  PEAYKVTADSLPATLLEVVPMTIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 334;
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alcohol dehydrogenase (Zn containing) (adh-12) [imported] - Sulfolobus solf C;Species: Sulfolobus solfataricus C;Date: 24-May-2001 #sequence_revision 24-May-2001 #text_change 03-Aug-2001

solfataricus

Redder, P

B90457 RESULT 13

147

320

; Woo, L McClell

C58, D

256

264 206

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submitted to the EMBL Data Library, A.Reference number EMBL 18831
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T18230
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C;Superfamily: alcohol dehydrogenase; long-chain alcohol dehydrogenase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-331 < KUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Reference number: A99139
A;Accession: B90457
A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                  Superfamily: alcohol dehydrogenase; long-chain alcohol dehydrogenase; Keywords: alcohol metabolism; NAD; oxidoreductase; zinc; 44,67,154/Binding site: zinc, catalytic (Cys, His, Cys) #status pred:
                                                                                                                                                                                                                                                                                                                          :Note: adh2
                                                                                                                                                                                                                                                                                                                                                          Molecule type: DNA
;Residues: 1-348 <BAR>
;Cross-references: EMBL:AL033501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Accession: T18230
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                                                                                                                                                                                                                    Query Match
Best Local
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Best Local
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                                                                                                                                                                                                 98;
                                                                                                                                                          1. MSVPTTQKAVIIE - - GDKAVVKTDVSVPELKEGTALVKVEAVAGNPTD - - - WK - - - HIAY 52
                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NTGMFLVQLGKKFGA--KVIAVSRK---SWLRGYGADFVVDYNE--VEEKVKEITNGKMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIK----SKYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSTADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGAT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MSVPTTQKAVIFETNGGKLEYK-DIPVPKPKANELLINVKYSGVCHTDLHAWKGDWPLAT 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Y--SKHISILGVNR
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                                                       KLPLVGGHEG
                                                                                       KI----GPEGSILGCDIAGTVVKLGPNASTDLKVGD-TGFGFVHGA-----SQTDPK 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TDYKNPEIGNHEVLIRVKLAGVNPVDYYTVERLKVNPIPHIPGVEFSGEVVKVGDHVKS-
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                                                                                                                                                                                               Conservative
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                  -NGAFAEYARVYPPLFYKSNLTHSTADEISEGPVKNFESAASLPVSLTTA 148
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                                                                                                                                                                                                                  9.1%;
24.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -WEMGSSLTVAALTA----YHALKEAQLSPS-----QTLVVFGASG 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   282
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                                                     AGVVVALGENVK-GWKVGDYAGVKWLNGSCLNCEYCQSGAEPN 111
                                                                                                                                                                                               49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; Score 176; DB 2; I
; Pred. No. 1.2e-05;
51; Mismatches 107;
                                                                                                                                                                                                                  Score 175.5; DB 2
Pred. No. 1.4e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                  from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          II -
                                                                                                                                                                                                                                                                                                                                                             PIDN: CAA21988.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      November 1998
                                                                                                                                                                                                 Mismatches
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                                                                                                                                                                                                                                   DB 2;
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Ster, E.W.
A;Title: The Genome of the Natural Genetic
A:Peference number: AB2577; PMID:11743193
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C;Cpate: 11-Jan-2002 #sequence_revision 11-Jan-2002 #text_change 01-Feb-2002
C;Accession: AG3182
R;Wood, D.W.; Setubal, J.C.; Kaul, R.; Monks, D.; Chen, L.; Wood, G.E.; Chen, Y.; Woo, erage, G.; Gillet, W.; Grant, C.; Guenthner, D.; Kutyavin, T.; Levy, R.; Li, M.; McClel; Karp, P.; Romero, P.; Zhang, S.
Science 294, 2317-2323, 2001
A;Authors: Yoo, H.; Tao, Y.; Biddle, P.; Jung, M.; Krespan, W.; Perry, M.; Gordon-Kamm,
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A; Residues: 1-328 < KUR>
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    Agrobacterium tumefaciens (strain

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Search completed: June 17, 2003, 13:02:36 Job time : 29 secs

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	Query Match 55.5%; Score 1065.5; DB 1; Length 376; Best Local Similarity 54.0%; Pred. No. 5.8e-71; Matches 201; Conservative 59; Mismatches 109; Indels 3; Gaps 2 SVPTTQKAVIIEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAVKIGPEGSIL 6 3 SVPTTQKAVIIEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAVKIGPEGSIL 6 4 STEPHINION OF THE STREET OF T	CC Inis Swiss-PKUF entry is copyright. It is produced through a collaboration CC between the Swiss Institute of Bioinformatics and the EMBL outstation CC the European Bioinformatics Institute. There are no restrictions on its CC use by non-profit institutions as long as its content is in no way CC modified and this statement is not removed. Usage by and for commercial CC entities requires a license agreement (See http://www.isb-sib.ch/announce/CC or send an email to license@isb-sib.ch). CC	SEQUENCE FROM N.A. STRAIN-5288c; MEDIINE-96109932; PubMed-8619318; Mallet L., Bussereau F., Jacquet M.; "A 43.5 kb segment of yeast chromosome XIV, which commerce C	DT 01-0CT-1996 (Rel. 34, Created) DT 01-0CT-1996 (Rel. 34, Last sequence update) DT 01-0CT-1996 (Rel. 34, Last sequence update) DT 01-0CT-1996 (Rel. 34, Last annotation update) DT 01-0CT-1996 (Rel. 34, Last sequence update) DT 01-0CT-1996 (Rel. 34, Created) DT 01-0CT	LT 1 _YEAST _YUN4_YEAST STANDARD;	34 124.5 6.5 347 1 ADHI YEAST 35 124.5 6.5 357 1 CAD4 TOBAC 36 121.5 6.3 359 1 MTD MEDSA 37 121 6.3 399 1 DHSO RAT 38 120.5 6.3 339 1 DHSO RAT 39 120.5 6.3 339 1 ADHZ BACST 40 118.5 6.2 351 1 ADHZ YEAST 41 118 6.1 300 1 VATI HUMAN 42 117.5 6.1 367 1 ADHZ EMENI 43 117 6.1 336 1 ADHZ EMENI 44 117 6.1 347 1 ADH SULSR 45 117 6.1 375 1 DHSO MOUSE 46 118 5.1 375 1 DHSO MOUSE 47 118 6.1 300 1 OATH BOUSE 48 117 6.1 347 1 ADH SULSR 49 118 6.1 300 1 OATH BOUSE 40 118 6.1 300 1 OATH BOUSE 41 118 6.1 300 1 OATH HUMAN 42 117 6.1 367 1 ADHZ EMENI 43 117 6.1 336 1 ADHZ EMENI 44 117 6.1 347 1 ADH SULSR 45 117 6.1 375 1 DHSO MOUSE 46 1442 mus musculu
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Matches 193
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                                                                                                                                                                                                                                                                                                                                   use by non-profit institutions as long modified and this statement is not remove entities requires a license agreement (s) or send an email to license@isb-sib.ch).
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Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
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SGD; S0004452; YLR460C.
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Pfam; PF00107; adh_zi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
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ELKFLGEDVLPAGPVRSLEGVATIPVSLTTAGLVLTYNLGLDLKWEPSTPQRKGPILLWG
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                                                                                           LGCDIAGTVVKLGPNAS-TDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKS--
                                                                                                                                                  MSVPTTQKAVIIEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPEGSI
                                                                                                                        VAIPETMKAVVIEDGKAVVKEGIPIPELEEGFVLIKTLAVAGNPTDWAHIDYKIGPQGSI
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(See http://www.isb-sib.ch/announce)
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                                                                                                                                                                                                                                                                                                                                                             PIR; S19414; S19414.
SGD; S0000699; YCR102C.
InterPro; IPR002085; Adh_zn_family.
Pfam; PF00107; adh_zinc; 1.
SEQUENCE 368 AA; 40121 MW; OBEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Grivell L.A., de Haan M., Maat M.J.;
Submitted (MAR-1992) to the EMBL/GenBank/DDBJ databases.
-!- SIMILARITY: BELONGS TO THE YCR102C/YLR460C/YNL134C FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Fungi; i Saccharomycetales;
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                                                                                                                             DEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQ
                                                                                                                                                                  QIVKLGPAVDPKDFSIGDYIYGFIHGSSVRFPSNGAFAEYSAISTVVAYKSPNELKFLGE
                                                                                                                                                                                                   TVVKLGPNAS-TDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKS--NLTHSTA
                                                                                                                                                                                                                                                           KAVIIEGDKAVVKTDVSVPELKEGTALVKVEAVAGNPTDWKHIAYKIGPEGSILGCDIAG
VGSEDSIPEAYKVTADSLPĄTLLEVVPMTIESIPEEIRKDNVKIDITLLYRASGQEILLG
                                  SLIQLANKLNGFTKIIVVASRKHEKLLKEYGADQLFDYHDIDVVEQIKHKYNNISYLVDC
                                                      QLIQVAKHINAYTKIYTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQHVIDA
                                                                                                   DVLPAGPVRSLEGAATIPVSLTTAGLVLTYNLGLNLKWEPSTPQRNGPILLWGGATAVGQ
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(Rel. 22, Last sequence up)
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Pred. No. 2.6e-67;
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01-OCT-1996
01-OCT-1996
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cheng Y.-Q., Ahn J.-H., Walton J.D.;
Submitted (OCT-1995) to the EMBL/GenBank/DDBJ databases.
-i- FUNCTION: UNIQUE TO ISOLATES THAT MAKE THE CYCLIC PEPTIDE TOXIN, BUT HAS NO ROLE IN TOXIN BIOSYNTHESIS.
-i- SIMILARITY: BELONGS TO THE YCR102C/YLR460C/YNL134C FAMILY.
                                                                                                                                                                                                                                                                                                                                                                      EMBL; X92391; CAA63129.1; -. InterPro; IPR002085; Adh zn family. Pfam; PF00107; adh zinc; 1. SEQUENCE 297 AA; 32549 MW; OFFB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
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STRAIN=ATCC 90305
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                                                                                                                                                                                                                                                                                                                                                                                                                                                     send an email to license@isb-sib.ch).
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                                                                           GQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPN-LQHV
                                                                                                                     PENLS--,---FQEAATLGVGIKTVGQGLYQSL--KLSW-PTTPIEHAVPILIYGGSTAT
                                                                                                                                                   ADEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTP-QHTHPLLIWGGATAV
                                                                                                                                                                                    DYAGIVEEVGRSVKKPFKKGDRVCGFAHGGNAVFSDDGTFAEVITV-----KGDIQAWI 114
                                                                                                                                                                                                                  DIAGTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNLTHST
                                                                                                                                                                                                                                               TFQKAIVTEAPHRARLVSDRLIPKLRDDYILVRTVSVALNPTDWKHI-LRLSPPGCLVGC
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 FDTISIDVSARFCDRAMSTEGGEYSALLDV-
                                                             GTLAIQLAK
                                                                                                                                                                                                                                                                                                            Conservative
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(Rel. 34, Last sequence up
(Rel. 41, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  carbonum (Bipolaris zeicola)
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                                                           LSGY-RVITTCSPHHFELMKSLGADLVFDYHEITSADHIRRCTONKLKLV
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White O., Alonso J., Altafi H., Araujo R., Bowman C.L., Brooks S.Y.,
Buehler E., Chan A., Chao Q., Chen H., Cheuk R.E., Chin C.W.,
Chung M.K., Conn L., Conway A.B., Conway A.R., Creasy T.H., Dewar K.,
Dunn P., Etgu P., Feldblyum T.V., Feng J.-D., Fong B., Fujii C.Y.,
A. Gill J.E., Goldsmith A.D., Haas B., Hansen N.F., Hughes B., Huizar L.,
Hunter J.L., Jenkins J., Johnson-Hopson C., Khan S., Khaykin E.,
A. Kim C.J., Koo H.L., Kremenetakaia I., Kurtz D.B., Kwan A., Lam B.,
A. Kim C.J., Koo H.L., Kremenetakaia I., Kurtz D.B., Kwan A., Lam B.,
A. Kim C.J., Koo H.L., Kremenetakaia I., Kurtz D.B., Kwan A., Lam B.,
A. Militscher J., Miranda M., Nguyen M., Maiti R., Marziali A.,
A. Militscher J., Miranda M., Nguyen M., Nierman M.C., Osborne B.I.,
A. Militscher J., Miranda M., Nguyen M., Nierman M.C., Osborne B.I.,
A. Militscher J., Pham P.K., Rizzo M., Rooney T., Rowley D.,
A. Sakano H., Salzberg S.L., Schwartz J.R., Shinn P., Southwick A.M.,
Salshin, Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,
A. Mu D., Yu G., Fraser C.M., Venter J.C., Davis R.W.;
"Sequence and analysis of chromosome 1 of the plant Arabidopsis."
                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 84
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EM the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content modified and this statement is not removed. Usage by and entities requires a license agreement (See http://www.isb-sor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                         PROSITE; PS01162; QOR ZETA CRYSTAL; FALSE_NEG.
Oxidoreductase; Zinc; NAD.
SEQUENCE 309 AA; 32775 MW; EC328042771BEEE6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR002085; Adh_zn_family.
InterPro; IPR002364; QOR_zeta_crystal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nature 408:816-820(2000).
-!- SIMILARITY: BELONGS TO THE ZINC-CONTAINING ALCOHOL DEHYDROGENASE FAMILY. QUINONE OXIDOREDUCTASE SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
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Arabidopsis thaliana (Mouse-ear cress).
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Quinone oxidoreductase-like protein At1g23740
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16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation updat
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                                           124 -----DFAQAAGLPLAIETADEGLV-----RTEFSAG-----KSILVLNGAGGVGSLVI
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                                                                                                                                                                   KLGPNASTDLKVGDTGFGFVHGASQTDPKN-GAFAEYARVYPPL--FYKSNLTHSTADEI
                                                                                  SEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQQLI
                                                                                                                         KVG-SAVKDLKEGDEVYANVSEKALEGPKOFGSLAEYTAVEEKLLALKPKNI------
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Pred. No. 1.5e-11;
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between
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InterPro; IPR002085; Adh zn family.
Pfam; PF00107; adh zinc; 1.
PROSITE; PS00059; ADH ZINC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Taylor K., Harris D., Barrell B.G., Rajandream Submitted (NOV-1998) to the EMBL/GenBank/DDBJ (-!- CATALYTIC ACTIVITY: An alcohol + NAD(+) = &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Candida albicans (Yeast).
Eukaryota; Fungi; Ascomycota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oxidoreductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; AL033501; CAA21988.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                use by non-profit institution in the modified and this statement
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=1161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=5476;
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ADH2 OR CA41C10.04.
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16-OCT-2001
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- SUBCELLULAR I
- SIMILARITY: I
FAMILY.
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                                                                                                                                                                                               MSVPTTQKAVIIE--GDKAVVKTDVSVPELKEGTALVKVEAVAGNPTD---WK---HIAY 52
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                                                                                                                      KI----GPEGSILGCDIAGTVVKLGPNASTDLKVGD-TGFGFVHGA-----
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(Rel. 40,
                                                                                                                                                                                                                                             Conservative
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HOMOTETRAMER (BY SIMILARITY).
LAR LOCATION: Cytoplasmic (Probable).
TY: BELONGS TO THE ZINC-CONTAINING AL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bioinformatics Institute.
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24.6%;
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Last annotation update)
2 (EC 1.1.1.1).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        copyright. It is produced through a cutte of Bioinformatics and the EMBL
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                                                                               -AGVVVALGENVK-GWKVGDYAGVKWLNGSCLNCEYCQSGAEPN
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                                                                                                                                                                                                                                                                              Score 175.5;
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C (CATALYTIC) (BY SIMILARITY).
C (SECOND ATOM) (BY SIMILARITY).
C (CATALYTIC) (BY SIMILARITY).
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databases.
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                                    EMBL;
EMBL;
EMBL;
                                                                                              entities
or send a
                                                                                                                                                                                                                                                                                                                                                                                                        Gonzalez P., Rao P.V., Zigler J.S. Jr.;
"Molecular cloning and sequencing of ze
reductase cDNA from human liver.";
Biochem. Biophys. Res. Commun. 191:902-
                                                                                                                    modified and this statement
                                                                                                                                                                  This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quinone oxidoreductase crystallin)
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01-OCT-1994
                                                                                                                                                        between
                                                                                                                                                                                                                                                                                                                           "Organization of the (CRYZ).";
                                                                                                                                                                                                                                                                                                                                                   Gonzalez P.,
                                                                                                                                                                                                                                                                                                                                                             MEDLINE=94375054;
                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=93221534; PubMed=8466529;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE=Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-OCT-1994
15-JUN-2002
                                                                                                                                           s SWISS-PROT entry is copyright. It is produced through a ween the Swiss Institute of Bioinformatics and the EMBL European Bioinformatics Institute. There are no restrict
                                                                                                                                                                                                                                                              OMICS 21:317-324(1994).
FUNCTION: DOES NOT HAVE ALCOHOL DEHYDROGENI
NADP AND ACTS THROUGH A ONE-ELECTRON TRANSI
ORTHOQUINONES ARE THE BEST SUBSTRATES. MAY
DETOXIFICATION OF XENOBIOTICS.
                                                                                                                                                                                                      TISSUE SPECIFICITY: ONLY VERY LOW AMOUNTS SIMILARITY: BELONGS TO THE ZINC-CONTAINING
                                                                                                                                                                                                                   SUBCELLULAR LOCATION: Cytoplasmic TISSUE SPECIFICITY: ONLY VERY LOW
                                                                                                                                                                                                                                         CATALYTIC ACTIVITY: NA SUBUNIT: HOMOTETRAMER.
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;; L13278; AAA36536.1;
L31526; AAK40311.1;
;; L31527; AAK40311.1;
;; L31522; AAK40311.1; J
;; L31523; AAK40311.1; J
;; L31523; AAK40311.1; J
;; L31525; AAK40311.1; J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  288
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                                                                                                            requires a license agreement
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                                                                                                email to license@isb-sib.
                                                                                                                                                                                            QUINONE OXIDOREDUCTASE SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (Rel. 30, Last sequence update)
(Rel. 41, Last annotation updat
doreductase (EC 1.6.5.5) (NADPH
                                                                                                                                                                                                                                                                                                                                                   Rao
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Human)
                                                                                                                                                                                                                                                     ACTIVITY: NADPH +
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                                                                                                                                                                                                                                                                                                                                                   ש
                                                                                                                                                                                                                                                                                                                                  PubMed=8088825;
P.V., Zigler J.S. Jr.;
the human zeta-crystallin/quinone reductase
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Primates;
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Catarrhini;
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                                                                                                                                                                                                                                                    quinone
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                                                                                                                                                                                                                                                                                        DEHYDROGENASE
TRON TRANSFER
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(NADPH:quinone
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                                                                                                          (See http://www.isb-sib
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ALCOHOL DEHYDROGENASE
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EMBL;

HSSP; P28304; 1QOR.

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RESULT 8

QOR CAVPO
ID QOR
AC P114
DT 01-C
DT 16-C
DT 16-C
DT Quin
DE Crys
GN CRYZ
OS Cavi
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Best Local S
Matches 73
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QOR_CAVPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genew; HGNC:2419; CRYZ.
MIM; 123691; -.
                  TISSUE-Liver;
MEDLINE-92112732; PubMed-1370456;
Rao P.V., Krishna C.M., Zigler J.S. Jr.;
"Identification and characterization of zeta-crystallin from guinea pig lens. A
                                                                                                                                                                                                                                                                                                                                        Cavia porcellus (Guinea pig).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR002085; Adh_zn_family.
InterPro; IPR002364; QOR_zeta_crystal.
Pfam; PP00107; ddh_zinc; 1.
PROSITE; PS01162; QOR_ZETA_CRYSTAL; 1.
Oxidoreductase; NADP; Zinc.
SEQUENCE 329 AA; 35206 MW; 68C1828911486D4E CRC64;
                                                                                                                                     "Purification and characterization "Purification and characterization liver.",
                                                                                                                                                                                                                                         Rodokanaki A., Holmes R.K., Borras "Zeta-crystallin, a novel protein to alcohol dehydrogenases.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                      P11415;
01-OCT-1989
                                                                                                                                                                                                                                                                                                                                                                                               crystallin).
                                                                                                                                                                                                                                                                                                                                                                                                               Quinone oxidoreductase
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                                                                                           (3)
CHARACTERIZATION.
                                                                                                                    reductase from guinea pig liver.";
Biochim. Biophys. Acta 1117:315-320(1992)
                                                                                                                                                                         MEDLINE=93041895; PubMed=1420281;
                                                                                                                                                                                          TISSUE=Liver;
                                                                                                                                                                                                     CHARACTERIZATION.
                                                                                                                                                                                                                                  Gene 78:215-224(1989).
                                                                                                                                                                                                                                                                                    MEDLINE=89378748; PubMed=2777081;
                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=10141;
                                                                                                                                                                                                                                                                                                                                                                                                                           16-OCT-2001
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                                                                                                                                                                                                                                                                                                                                                                                                           (Rel. 12, Last sequence update)
(Rel. 40, Last annotation update)
doreductase (EC 1.6.5.5) (NADPH:quinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Rel. 12, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
267:96-102(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                  AND PARTIAL SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.4%;
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Pred. No. 0.
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Hystricognathi; Caviio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
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                                                                                                                                               of zeta-crystallin/quinone
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                      the enzymatic activity novel NADPH:quinone
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RESULT 9
QOR MORE
ID QOR MORE
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DT 15-JU
DE Quino
DE CRYS-
GN CRYS-
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OC Eukar
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Best Local
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P47199; Q99163, Q62508;
01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence
15-JUN-2002 (Rel. 41, Last annotation of the control of the 
Eukaryota; Metazoa; (
Mammalia; Eutheria; F
NCBI_TaxID=10090;
[1]
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PIR; JS0230; CYGPZ.
HSSP; P283043; 1QOR.
InterPro; IPR002085; Adh_zn_family.
InterPro; IPR002364; QOR_zeta_crystal.
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                                                                                                  Mus musculus (Mouse)
                                                                                                                                                    crystallin).
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TISSUE SPECIFICITY: IN GUINEA PIGS IT CONSTITUTES ABOUT 10% OF THATISUE SPECIFICITY: IN GUINEA PIGS IT CONSTITUTES ABOUT 10% OF THATISUE SPECIFICATION OF THE LENS.

DISEASE: A GENOMIC MUTATION CAUSING THE DELETION OF 34 AMINO ACII WAS CLEARLY ASSOCIATED WITH A HEREDITARY NUCLEAR CATARACT IN A LINE OF STRAIN 13 GUINEA PIGS.

SIMILARITY: BELONGS TO THE ZINC-CONTAINING ALCOHOL DEHYDROGENASE
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CATALYTIC ACTIVITY: NADPH + quinone = SUBUNIT: HOMOTETRAMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FUNCTION: DOES NOT HAVE ALCOHOL DEHYDROGENASE ACTIVITY. NADP AND ACTS THROUGH A ONE-ELECTRON TRANSFER PROCESS. ORTHOQUINONES ARE THE BEST SUBSTRATES. MAY ACT IN THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FAMILY. QUINONE OXIDOREDUCTASE SUBFAMILY.
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                                             Chordata;
Rodentia;
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Pred. No. 0.
                                               Sciurognathi;
                                                                          Craniata; Vertebrata;
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(NADPH:quinone
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                                                  Muridae;
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                                                                          Euteleostomi;
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Best Local
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Biochem. Biophys. Res. Commun. 219:795-799(1996).
-i-FUNCTION: DOES NOT HAVE ALCOHOL DEHYDROGENASE ACTIVITY. BIND NADP AND ACTS THROUGH A ONE-ELECTRON TRANSFER PROCESS.
ORTHOQUINONES ARE THE BEST SUBSTRATES. MAY ACT IN THE DETOXIFICATION OF XENOBIOTICS (BY SIMILARITY).
-i-CATALYTIC ACTIVITY: NADPH + quinone = NADP(+) + semiquinone.
                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
TISSUE-Liver;
MEDLINE-94224126; PubMed-8170370;
MEDLINE-94224126; PubMed-8170370;
Gonzalez P., Hernandez-Calzadilla C., Rao P.V., Rodriguez I.R.,
Zigler J.S. Jr., Borras T.;
"Comparative analysis of the zeta-crystallin/quinone reductase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; S70056; AAB30620.2; -. EMBL; BC003800; AAH03800.1; -. EMBL; D78646; BAA11463.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
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use by non-profit institutions as long as its content
modified and this statement is not removed. Usage by ar
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 130-331 FROM N.A. STRAIN=C57BL/6J; TISSUE=Brain cortex; MEDLINE=96216731; PubMed=8645260;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Strausberg R.; Submitted (FEB-2001) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE=Breast tumor;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MGD; MGI:88527;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           guinea pig and mouse."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUBCELLULAR LOCATION: Cytoplasmic.
SIMILARITY: BELONGS TO THE ZINC-CONTAINING ALCOHOL DEHYDROGENASE FAMILY. QUINONE OXIDOREDUCTASE SUBFAMILY.
                                    191
170 R-AHGLKVLGTAGSEEGKKLVLQNGAHEVFNHKEANYIDKİKM-----SVGDKDK 218
                                                                        120
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                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                       VKTDVSVPELKEGTALVKVEAVAGNPTDW--KHIAYKIGPEGSIL-GCDIAGTVVKLGPN 75
                                  KHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQHVIDAVGSEDS 250
                                                                                                                                            VSA-FKKGDRVFCY-----STVSGGYAEFALAADDTIYP-
                                                                                                      PVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQQLIQVA 190
                                                                                                                                                                                                                    LOSDVVVPVPQSHQVLIKVHACGVNPVETYIRSGAYSRKPALPYTPGSDVAGIIESVGDK 83
                                                                                                                                                                                ASTDLKVGDTGFGFVHGASQTDPKNGAFAEYA----RVYPPLFYKSNLTHSTADEISEG 130
                                                                    -TLNFRQGAALGIPYFTA----CRAL----FHSARARAGESVLVHGASGGVGLATCQIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Evol. 11:305-315(1994).
                                                                                                                                                                                                                                                                                                                                                               331 AA;
                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                             58 A -> T (IN REF. 2).
133 IPY -> TMD (IN REF. 3).
35268 MW; 35816C043EFE16A2 CRC64;
                                                                                                                                                                                                                                                                                         8.3%; Score 158.5; DB 1; 22.4%; Pred. No. 0.00017; tive 53; Mismatches 119;
                                                                                                                                                                                                                                                                                                                           Length 331;
                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                           77;
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223 HDAGVIEQIKSKYP-NLQHVIDAVGSEDSIPEAYKVVTADSLPATLLEVVPM 272 199 KTESLDGRLHELCPKGVDVYYSCVGGH-TENDAVRHVAVHARVVIIGSISSYKSGEVVPF 257	SEEKAEFLKSIGCDHVINY	-o	106 YARVYPPLFYKSNLTHSTADEISEGPVKNFESAAS-LPVSLTTAGVSLCHHLGSKMEW 162 :	TNGSYFKNVQPPFDCGFEAAGTVVQIGAGVA-NVKVGDHVVLMQYGCFAE		1 MSSPSNEKKLQVVSLSKDFRSSTSVVEAHLPBEVPEGMVRVSVKYAGVNASDLNF 55	8.1%; Score 155; DB 1; Length 340; Similarity 23.5%; Pred. No. 0.00031; 2; Conservative 58; Mismatches 151; Indels 90; Gaps	reductase; NADP; Zinc. NCE 340 AA; 36272 M	PF00107; adh_zinc; 1. TE; PS01162; QOR_ZETA_CRYS	InterPro; IPR002364; QOR_zeFa_crystal.	1	www.isb-sib.ch/annour	content is in no by and for commerc	this swiss-ray is copyright. It is produced through a corresponding to between the Swiss Institute of Bioinformatics and the EMBL outstation the European Hioinformatics Institute. There are no restrictions on its	+ h	TY: BELONGS TO THE ZINC	essed in Leishmania spp.";	tion	MEDITINE=95107343; PubMed=7808470; Liu X., Chang K.P.;	<pre>Eukaryota; Euglenozoa; Kinetoplastida; Trypanosomatidae; Leishmania. NCBI_TaxID=5659;</pre>	reductase) (P36). Leishmania amazonensis.	oxidoreductase (EC 1.6.5.5	32, Last sequence up 34, Last annotation	(Rel. 32,	LEIAM STANDARD; PRT; 340 AA.		255 EINPRDTMAKETSIIGVSLSS 275	311 SPEYHEATVKFVKFINPHLNN 331	219GVDVIIEMLANENLSNDLKLLSHGGRVVVVGCRGPI 254	SIPEEIRKDNVKIDITLLYRASGQEIL

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RESULT
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Best Local &
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or send a
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01-FEB-1995 (Rel. 31, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
01-NOV-1997 (Rel. 35, Last annotation update)
Hypothetical 41.6 kDa protein in IMP1-HLJ1 intergenic region (RF1095).
YMR152W OR YM9375.22 OR YM8520.01.
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YM27
                                                                                                                                                         CONFLICT
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STRAIN=S288c / Aby...,
Churcher C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=91360060; PubMed=1886606;
Behrens M., Michaelis G., Pratje E.;
Mitochondrial inner membrane protease 1 of Saccharomyces cerevisiae
shows sequence similarity to the Escherichia coli leader peptidase.";
Mol. Gen. Genet. 228:167-176(1991).
                                                                                                                                                                                                                                                                                                                                                      the European Bioinformatics Institute. There are no rest
use by non-profit institutions as long as its content
modified and this statement is not removed. Usage by ar
                                                                                                                                                                                                                                                                                                                                                                                                                                           Hunt S., Bowman S., Barrell B.G., Rajandream N
Submitted (MAY-1995) to the EMBL/GenBank/DDBJ
-!- SIMILARITY: SOME, TO YEAST AST1/AST2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Saccharomyces cerevisiae (Baker's yeast).
Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Badcock K., Churcher C., Bar
Submitted (DEC-1994) to the
                                                                                                               SEQUENCE
                                                                                                                                                                                                                  Pfam;
                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=S288c / AB972;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 196-365 FROM N.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Saccharomycetales;
                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                   Appothetical
                                                                                                                                                                                                                                                                                                                              send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                           S16819; S16819
S0004760; YMR1
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                                                                                                                                                                                     16819; Sibol.; 16819; Sibol.; 16819; YMR152W.
2ro; IPR002085; Adh zn family.
PF00107; adh zinc; I.
Protein; Transmembrane.
POTENT!
                                                                                                                                                                                                                                                                    S55518; AAB19702.1; -. Z47071; CAAB7367.1; -. Z49705; CAAB9788.1; -.
                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                            requires a license agreement
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                            TQKAVIIEGDKAVVKTDVSVPELK----EGTALVKVEAVAGNPTDW-KH---IAYKIGPE
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                                                                                                              MW;
                                                        49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rrell B.G., Rajandream M.A.,
EMBL/GenBank/DDBJ databases
                                                                                                                           POTENTIAL.
V -> I (IN
S -> I (IN
D -> N (IN
L -> S (IN
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RA MEDILINE-21016721; PubMed=1130714;
RA Miyajima N., Sasamoto S., Kimura T., Hosouchi T., Kawashima K.,
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RA Miyajima N., Sasamoto S., Kimura T., Hosouchi T., Kawashima K.,
RA Miyajima N., Sasamoto S., Kimura T., Hosouchi T., Kawashima K.,
RA Kohara M., Mateumoto M., Matsuno A., Muraki A., Nakayama S.,
RA Rateumoto M., Matsuno A., Muraki A., Nakayama S.,
RA Nakazaki N., Naruo K., Okumura S., Shinpo S., Takeuchi C., Wada T.,
RA Nakazaki N., Naruo K., Okumura S., Shinpo S., Takeuchi C., Wada T.,
RA Huang E., Spiegel L., Gnoj L., O'Shaughnessy A., Preston R.,
RA Huang E., Spiegel L., Gnoj L., O'Shaughnessy A., Preston J.,
RA Habermann K., Murray J., Johnson D., Rohlfing T., Nelson J.,
RA Habermann K., Murray J., Johnson D., Rohlfing T., Nelson J.,
RA Habermann K., Murray J., Johnson D., Roller W., Dante M.,
RA Belter E., Cordum H., Cordes M., Courtney W., Dante M.,
RA Leonard S., Meyer R., Mulvaney E., Ozersky P., Riley A., Strowmatt C.,
RA Leonard S., Meyer R., Mulvaney E., Ozersky P., Riley A., Strowmatt C.,
RA Wagner-McPherson C., Wollam A., Yoakum M., Bell M., Dedhia N.,
RA Kirchoff K., Toth K., King L., Bahret A., Miller B., Marra M.,
RA Kirchoff K., Toth K., King L., Bahret A., Miller B., Marra M.,
RA Kirchoff K., Toth K., King L., Bahret A., Miller B., Marra M.,
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RA Entian K.-D., Terryn N., Hartley N., Bent E., Johnson S.,
RA Entian K.-D., Terryn N., Hartley N., Bent E., Johnson S.,
RA Ramsperger U., Wedler H., Balke K., Wedler E., Jackema W., Pohl T.,
RA Van Staveren M., Dirkse W., Mooijman P., Klein Lankhorst R.,
RA Weitzenegger T., Bothe G., Rose M., Hauf J., Berneiser S., Hempel S.,
RA Peldpausch M., Lamberth S., Villarroel R., Gielen J., Ardiles W.,
RA Bents O., Lemcke K., Kolesov G., Mayer K.F.X., Rudd S., Schoof H.,
RA Hartley M., Standard P., Mewes H.-W., Bean M., Fransz P.F.,
RA Hartley M., Standard P., Mewes H.-W., Bean M., Fransz
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Q39172;
01-NOV-1997
01-NOV-1997
STRAIN=cv. Columbia;
MEDLINS=96064691; Pub/Med=7592828;
Babiychuk E., Kushnir S., Belles-Boix E., van Montagu M.,
"Arabidopsis thaliana NADPH oxidoreductase homologs confe-
of yeasts toward the thiol-oxidizing drug diamide.";
J. Biol. Chem. 270:26224-26231(1995).
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Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core e
eurosids II; Brassicales; Brassicaceae; Arabidopsis.
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01-NOV-1997 (Rel. 35, Last Bequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Probable NADP-dependent oxidoreductase P1 (EC 1.-.-).
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edons; core eudicots; Rosidae;
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Q07288;
Q1-FEB-1995
Q1-FEB-1995
16-OCT-2001
                    STRAIN=ATCC 12424;
MEDLINE=93250057; PubMed=8485163;
Ladriere J.M., Delcour J., Vandenhaute J.;
Isequence of a gene coding for a cytoplasmic from Kluyveromyces marxianus ATCC 12424.",
Biochim. Biophys. Acta 1173:99-101(1993).
-I- CATALYTIC ACTIVITY: An alcohol + NAD(+) =
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Saccharomycetales;
NCBI_TaxID=4911;
                                                                                                                                                                                                                                                                     Kluyveromyces marxianus (Yeast) (Kluyveromyces fragilis).
Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
Saccharomycetales; Saccharomycetaceae; Kluyveromyces.
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InterPro; IPR002085; Adh_zn_family.
Pfam; PF00107; adh_zinc; 1.
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nase 1 (EC 1.1.1.1).
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7; Mismatches 142
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RESULT
ADH2_P1
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(Rel. 37, Rel. 37, Rel. 37, Rel. 37, Rel. 37,

Last sequence up Last annotation II (EC 1.1.1.1)

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Alcohol dehydrogenase I ADH2 OR ADH1. Pichia stipitis (Yeast)

ADH2 PICST 013309; 0000 15-DEC-1998 15-DEC-1998 15-DEC-1998

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InterPro; IPR002085; Adh zn_fa
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- SUBUNIT: HOMOTETRAMER.
- SUBCELLULAR LOCATION: Cy
- SIMILARITY: BELONGS TO T
FAMILY.
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TE: PS00059; ADH_ZINC;
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SISIVGSYVGNRADTREALDFFSRGLVKAPIKILGLSE
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44 ZINC (CATALYTIC) (BY SIMILARITY).

67 ZINC (SATALYTIC) (BY SIMILARITY).

98 ZINC (SECOND ATOM) (BY SIMILARITY).

90 ZINC (SECOND ATOM) (BY SIMILARITY).

101 ZINC (SECOND ATOM) (BY SIMILARITY).

102 ZINC (SECOND ATOM) (BY SIMILARITY).

103 ZINC (SECOND ATOM) (BY SIMILARITY).
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THE ZINC-CONTAINING ALCOHOL
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3; Mismatches
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Pred. No. 0.
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Passoth V., Schaefer B., Liebel B., Weierstall T., Klinner Passoth V., Schaefer B., Liebel B., Weierstall T., Klinner "Molecular cloning of alcohol dehydrogenase genes of the yestipitis and identification of the fermentative ADH.";
Yeast 14:1311-1325(1998).
-i- FUNCTION: CONVERTS ETHANOL TO ACETALDEHYDE.
-i- CATALYTIC ACTIVITY: An alcohol + NAD(+) = an aldehyde c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes; Saccharomycetales; Saccharomycetaceae; Pichia.
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STRAIN=ATCC 58785 / CBS 6054;
MEDLINE=98207839; PubMed=9546172;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBUNIT: HOMOTETRAMER (BY SIMILARITY). SUBCELLULAR LOCATION: Cytoplasmic.
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MISSING (IN REF. 2).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=99019018; PubMed=9802210; Passoth V., Schaefer B., Liebel B., Weierstall T., Klinner "Molecular cloning of alcohol dehydrogenase genes of the yestipitis and identification of the fermentative ADH."; Yeast 14:1311-1325(1998).
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STRAIN=ATCC 58785 / CBS 6054;
MEDLINE=98207839; PubMed=9546172;
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                                                                                                                                                                                                                                                                                                               use by non-profit institutions as long modified and this statement is not removed
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                                                                                                                                                                                                    EMBL; AF008245; AAC49991.1; -.
EMBL; Y13397; CAA73827.1; -.
                                                                                                                                                                                                                                                                     or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                             entities requires a license agreement
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SIMILARITY: BELONGS TO
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296 VGNRADSAEAIDFFTRGLIKCPIKVVGLSE 325
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                                                                                                                                                                                                                                                                                                                                                                                                     153 CHHLGSKMEWHPSTPQHTHPLLIWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLK 212
                                                   329 LNNGDIHHMNIKVFSNGLDDVPALTEGIKE 358
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112 ZINC (SECOND ATOM) (BY SIMILARITY).
154 154 ZINC (CATALYTIC) (BY SIMILARITY).
348 AA; 36520 MW; 49C06B545D5350F4 CRC64;
                                                                                                                                                                                                                              -----TVSKDIVKDIQTAT-DGGPHAAINV--- 246
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Search completed: June 17, 2003, 10:49:14 Job time : 19 secs

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Result
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Maximum Match 100%
Listing first 45 summaries
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Maximum DB
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Perfect score:
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                                                                                                                                    309.5
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   SPTREMBL_21:*
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sp_vertebrate:*
sp_unclassified:*
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sp_bacteriap:*
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Q92130
Q927D0
Q927D0
Q945P3
Q957P3
Q957P3
Q957P4
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Q9p7f4 schizosacch
Q94110 fragaria an
Q23393 fragaria ve
Q9y7d0 aspergillus
Q8y9b9 listeria mo
Q945p3 arabidopsis
Q92e39 listeria in
Q43677 vigna radia
Q94f67 heijanthus
Q94f67 heijanthus
Q8uk00 agrobacteri
Q816702 streptomyce
Q9kfv8 bacillus ha
Q8tsm3 methanosarc
Q67374 aquifex aeo
Q98h13 rhizobium l
Q912a5 streptomyce
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ALIGNMENTS

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Qy 125 DEISEGPVKNFESAASLPVSLTTAGVSLCHHLGSKMEWHPSTPQHTHP 172 ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	Qy 67 GTVVKLGPNASTDLKVGDTGFGFVHGASQTDPKNGAFAEYARVYPPLFYKSNLTHSTA 124	Qy 8 KAVIIEGDKAV-VKTDVSVÞELKEGTALVKVEAVAGNPTDWKHIAVKIGÞEGSILGCDIA 66	Query Match 16.1%; Score 309.5; DB 3; Length 348; Best Local Similarity 28.2%; Pred. No. 7.3e-16; Matches 110; Conservative 49; Mismatches 160; Indels 71; Gaps 13;	SQ SEQUENCE 348 AA; 37929 MW; 63B638A712AFF1C2 CRC64;	DR InterPro; IPR002085; Adh_zn_tamily. DR Pfam; PF00107; adh_zinc; 1.	RA Harris D., Wood V., Rajandream M.A., Barrell B.G.; RL Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.	STRAIN=972H-;	RP SEQUENCE FROM N.A.	OC SChizosaccharomyces.		OS Schizosaccharomyces pombe (Fission yeast).	GN SPACZEIP3.01.	OI-OCI-ZOOI (IIEMBLIEL	01-OCT-2000 (TremBirel. 15,	Q9P7F4;	ID 09P7F4 PRELIMINARY: PRT: 348 AA.	RESULT 1

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Q94110;
01-DEC-2001
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SEQUENCE
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Fragaria ananassa (Strawberry).

Eukaryota, Viridiplantae, Streptophyta, Embryophyta; Tracheophyta;

Eukaryota, Viridiplantae, eudicotyledons, core eudicots, Rosid

eurosids I; Rosales; Rosaceae; Rosoideae; Fragaria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=CV. CHANDLER;
LODEZ-Raez J.A., Redondo-Nevado J., Medina-Escobar
Caballero-Repullo J.L., Munoz-Blanco J.;
"A putative strawberry quinone oxidoreductase fruit
                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR002085; Adh_zn_family
Pfam; PF00107; adh_zinc; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (JUL-2001) to the EMBL; AY048861; AAL06644.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A
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      KLKPYLESGKVKPVLDPTSPYPFTKVVEAFGYLESSRATGKVVV
                                   SIPEEIRKDNVK--IDITLLY---
                                                               YTKENFEDLPEKFDVVYDAVGETDKAVKAVKEGGKVVTIVGPATPPAILFVLTSKGSVLE
                                                                                          QIKSKYPNLQH----VIDAVGSEDSIPEAYK-----VTADSLPATLLEVVP---MTIE
                                                                                                                                                                                                                                              TDSPLPTIPGYDVAGVVVKVGSQV-TKFKVGDEVYGDLNETALVNPTRFGSLAEYTAAYE
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                                                                                                                                                                                                                                                                                                      SIPSVNKAWVYSEYGKTSDVLKFDPSVAVPEIKEDQVLIKVVAASLNPVDFKRALGYFKD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      K-----ATDDSV--FYGFDAASFPETSTLAVKAFSSKVKDGKLINILSSPPSP
                                                                                                                        --SVLVLGGAGGVGTHIIQLAKHVFGASKVAATASTKKLDLLRTLGAADL-----
                                                                                                                                                    THPLLIWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIE 229
                                                                                                                                                                                   RV-----LAHKPKN------LSFIEAASLPLAIETAHEGLERAELSAGK------
                                                                                                                                                                                                               PLFYKSNLTHSTADEISEGPVKNFESAASLPVSLTTA--GVSLCHHLGSKMEWHPSTPQH
                                                                                                                                                                                                                                                                                                                                                                                                                          339 AA;
                                                                                                                                                                                                                                                                                                                                                                   Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                           36194 MW; 4755D2EEB3471640 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                14.5%;
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Pred. No. 2.2e-13;
52; Mismatches 115;
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Best Local S
Matches 105
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Q9Y7D0;
01-NOV-1999
01-NOV-1999
01-OCT-2001
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Nam Y.W., Tichit L., Marty I., Lelievre J.M.;

"Isolation and characterization of cDNAs from genes differentially

"Isolation and characterization of cDNAs from genes differentially

expressed during ripening of wild strawberry (Fragaria vesca L.).";

Submitted (SEP-1997) to the EMBL/GenBank/DDBJ databases.

EMBL; AJ001445; CAA04767.1; -.

EMBL; AJ001445; CAA04767.1; -.

InterPro; IPR002085; Adh zn family.

Pfam; PF00107; adh_zinc; 1.
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Fragaria vesca (Moodland strawberry).

Eragaria viridiplantae; Streptophyta; Embryophyta; Tracheop Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheop Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; eurosids I; Rosales; Rosaceae; Rosoideae; Fragaria.
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01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
                                                                                                                            Aspergillus terreus.
Eukaryota; Fungi; Ascomycota;
Eurotiales; Trichocomaceae; m:
                                                                                                                                                                                                                               Enoyl reductase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
  Kennedy J., Auclair
                          STRAIN=ATCC20542;
                                                     SEQUENCE FROM N.A.
                                                                                               NCBI_TaxID=33178;
                                                                                                                                                                                                               NCBI_TaxID=57918;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KLKPYLESGKVKPVLDPTSPYPFTKVVEAFGYLESSRATGKVVV
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       Kendrew
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Pred. No. 6.8e
50; Mismatches
                                                                                                                                  a; Pezizomycotina; Eurotiom
mitosporic Trichocomaceae;
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Last
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       Park
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Best Local S
Matches 103
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Science 0:0-0(1999).
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01-MAR-2002
01-MAR-2002
01-JUN-2002
                                MEDINE-1537279; PubMed=11679669;

Glaser P., Frangeul L., Buchrieser C., Rusniok C., Amend A.,

Baquero F., Berche P., Bloecker H., Brandt P., Chakraborty T.,

Baquero F., Berche P., Bloecker H., Brandt P., Chakraborty T.,

Charbit A., Chetouani F., Couve E., de Daruvar A., Dhoux P.,

Domann E., Dominguez-Bernal G., Duchaud E., Durant L., Dussurget

Entian K.-D., Fsihi H., Garcia-del Portillo F., Garrido P.,

Gautier L., Goebel W., Gomez-Lopez N., Hain T., Hauf J., Jackson

Jones L.-M., Kaerst U., Kreft J., Kuhn M., Kunst F., Kurapkat G.,

Madueno E., Maitournam A., Mata Vicente J., Ng E., Nedjari H.,

Nordsiek G., Novella S., de Pablos B., Perez-Diaz J.-C., Purcell

Remmel B., Rose M., Schlueter T., Simoes N., Tierrez A.,

Varquez-Boland J.-A., Voss H., Wehland J., Cossart P.;
                                                                                                                                                                                                                                                                                                                                                                                  Q8Y9B9
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Pfam; PFO
            "Comparative genomics of Listeria species."; Science 294:849-852(2001).
                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                      Bacteria;
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PF00107; adh_zinc; 1.
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GD-E / SEROVAR 1/2A;
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eae; Listeria
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                                                                                                                                                                                                                                                                       Bacillus/Clostridium
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Last
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Pred. No. 1.7e
69; Mismatches
                                                                                                                                                                                                                                                                                                                                                       Created)
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annotation updat
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                                                                                                                                                                                                                                                                                                                                                                                 313
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Matches 102
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Q945P3;
01-DEC-2001
01-DEC-2001
                                                                                                                                                                                               SEQUENCE FROM N.A.
Shinn P., Chen H., Cheuk R., Kim C.J., Koesema E., Mey Shinn P., Chen H., Carninci P., Dale J.M., Goldsmith Banh J., Bowser L., Carninci P., Dale J.M., Goldsmith Hayashizaki Y., Ishida J., Jiang P.X., Jones T., Kamiy Karlin Neumann G., Kawai J., Lam B., Lee J.M., Lin J., Miranda M., Narusaka M., Nguyen M., Onodera C.S., Palm Pham P.K., Quach H.L., Sakurai T., Satou M., Seki M., Trang C.C., Toriumi M., Yamada K., Yamamura Y., Yu G., Shinozaki K., Davis R.W., Theologis A., Ecker J.R.; "Arabidopsis cDNA clones.";
                                                     Cheuk R., Chen H., Kim C.J., Meyers M.C., Shinn P., Banh J., Bowser L., Carninci P., Chang E., Dale J.M., Goldsmith A.D., Hayashizaki Y., Ishida J., Jones T., Kamiya A., Karlin-Neuman Kawai J., Lam B., Lee J.M., Lin J., Miranda M., Narusaka M., Kawai J., Lam B., Lee J.M., Lin J., Miranda M., Narusaka M., Kawai J., Lam C.S., Palm C.J., Quach H.J., Sakurai T., Seki M., Southwick A., Tang C.C., Toriumi M., Wu H.C., Yamadu Yamamura Y., Yu G., Yu S., Shinozaki K., Davis R.W., Theolog:
                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryo
Spermatophyta; Magnoliophyta; eudicotyledons;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF00107; adh_zinc; 1. Proteome.
Hypothetical protein; Complete proteome.
SEQUENCE 313 AA; 33940 MW; 0F1012C59A23621D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR002085 Pfam; PF00107; adh
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-bro; IPR002085;
           "Arabidopsis ORF clones.";
Submitted (APR-2002) to the
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edons; core eudicots; Rosid
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Baquero F., Berche P., Bloecker H., Brandt P., Chakraborty T.,
Charbit A., Chetouani F., Couve E., de Daruvar A., Deboux P.,
RA Domann E., Dominguez-Bernal G., Duchaud E., Durant L., Dussurget O.,
RA Entian K.-D., Fsihi H., Garcia-del Portillo F., Garrido P.,
RA Gautier L., Goebel W., Gomez-Lopez N., Hain T., Hauf J., Jackson D.,
A Jones L.-M., Kaerst U., Kreft J., Kuhn M., Kunst F., Kurapkat G.,
RA Madueno E., Maitournam A., Mata Vicente J., Ng E., Nadjari H.,
A Nordsiek G., Novella S., de Pablos B., Perez-Diaz J.-C., Purcell R.,
A Remmel B., Rose M., Schlueter T., Simoes N., Tierrez A.,
A Vazquez-Boland J.-A., Voss H., Webland J., Cossart P.;
"Comparative genomics of Listeria species.";
REMERI. NICOSTEC. CARCACTOR.
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Plaser P., Frangeul L
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01-DEC-2001 (TrEMBLrel. 19, L
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Hypothetical protein lin0622.
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Interpro; IPR002085; Adh_zin_family.
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SEQUENCE 386 AA; 40986 MW; 4DDD19133C9D5D84 CRC64;
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Listeriaceae; Listeria
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Matches 101
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STRAIN-RWILCZ CV. BERKEN; TISSUE-HYPOCOTYL;
Chen J., Mu D., Withham F.H., Heuser C.W., F
"Molecular cloning and characterization of
mungbean (Vigna radiata) hypocotyls during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosic eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae; Vigna.
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ELAEKF - - - DVVYDAVGQSERALKSVKEGGKV - -
                                                                                                                                                                                                        KV----LAHKPSN-----LSFVEAASLPLAIITAYQGL---
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milarity 28.9%;
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Pred. No. 5.3e-12;
9; Mismatches 143;
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01-JUN-2002 (TrEMBLrel. 21, Creat

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01-JUN-2002 (TrEMBLrel. 21, Last

zinc-binding oxidoreductase.

ATU5324 OR AGR_PAT_466.
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InterPro; IPR002085; Adh zn family.
Pfam; PF00107; adh zinc; 1.
SEQUENCE 309 AA; 33190 MW; EA03:
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01-MAR-2002 (TrEMBLrel. 20,
Quinone oxidoreductase-like
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 SEQUENCE FROM N.A.
               NCBI_TaxID=176299;
[1]
                                      Rhizobiaceae;
                                                 Bacteria; Proteobacteria;
                                                                Plasmid AT
                                                                            Agrobacterium Tumefaciens
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                                                                                                                                                                                                                                                                                                               GQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKSKYPNLQHVI
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ID 08570
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Streptomyces 11774 a.
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O85702;
01-NOV-1998 (TREMBLES). 0
01-NOV-1998 (TREMBLES). 0
01-JUN-2002 (TREMBLES). 2
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Wood D.W., Setubal J.C., Kaul R., Monks D.E., Kitajima J.P.,
Okura V.K., Zhou Y., Chen L., Wood G.E., Almeida N.F. Jr., Woo I
Chen Y., Paulsen I.T., Eisen J.A., Karp P.D., Bovee D. Sr.,
Chapman P., Clendenning J., Deatherage G., Gillet W., Grant C.,
Kutyavin T., Levy R., Li M.-J., McClelland E., Palmieri A.,
Kutyavin T., Levy R., Li M.-J., McClelland E., Romero P., Gordo
Raymond C., Rouse G., Saenphimmachak C., Wu Z., Romero P., Gordo
Zhang S., Yoo H., Tao Y., Biddle P., Jung M., Krespan W., Perry
Gordon-Kamm B., Liao L., Kim S., Hendrick C., Zhao Z.-Y., Dolan
Chumley F., Tingey S.V., Tomb J.-F., Gordon M.P., Olson M.V.,
                                                                                                                                                           Streptomyces lividans, a Streptomyces coelicolor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Genome sequence of the plant pathogen Agrobacterium tumefaciens C58."; Science 294:2323-2328(2001).
EMBL; AE008954; AAL46012.1; -...
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                                                                                                        Bacteria; Firmicutes; Actinobacteria; Actinobacteridae; Actinomycetales; Streptomyces.
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  SPECIES=S.lividans;
                            SEQUENCE FROM N.A.
                                                                         Actinomycetales;
NCBI_TaxID=1916,
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                                                                                 1902;
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  STRAIN=1326,
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29.9%; Pred.
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Last annotation update)
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ed. No. 9.6e-09;
Mismatches 106
  AND AJ100;
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Dolan
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Bentley S.D., Chater K.F., Cerdeno-Tarraga A.-M., Challis G.L.,
Thomson N.R., James K.D., Harris D.E., Quail M.A., Kieser H.,
Harper D., Bateman A., Brown S., Chandra G., Chen C.W., Collins
Cronin A., Fraser A., Goble A., Hidalgo J., Hornsby T., Howarth
Huang C.-H., Kieser T., Larke L., Murphy L., Oliver K., O'Neil &
Rabbinowitsch E., Rajandream M.A., Rutherford K., Rutter S.,
Seeger K., Saunders D., Sharp S., Squares R., Squares S., Taylon
Warren T., Wietzorrek A., Woodward J., Barrell B.G., Parkhill J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Redenbach M., Kieser H.M., Denapaite D., Eichner A
Kinashi H., Hopwood D.A.,
"A set of ordered cosmids and a detailed genetic a
the 8 Mb Streptomyces coelicolor A3(2) chromosome.
Mol. Microbiol. 21:77-96(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Complete genome sequence of coelicolor A3(2).";
Nature 417:141-147(2002).
EMBL; AF072709; AAC25771.1;
EMBL; AL445945; CAC14345.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SPECIES=S.coelicolor; STRAIN=A3(2);
Cerdeno A.M., Parkhill J., Barrell B.G., Rajandream M.A Submitted (OCT-2000) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPECIES=S.coelicolor; STRAIN=A3(2
MEDLINE=97000351; PubMed=8843436;
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Seeger K.J., Harris D
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"Amplifiable element
Submitted (JUN-1998)
                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR002085; Adh_zn_family.
InterPro; IPR002264; QOR_zeta_crystal.
Pfam; PF00107; adh_zinc; 1.
PROSITE; PS01162; QOR_ZETA_CRYSTAL; 1.
SEQUENCE 313 AA; 33213 MW; 44B2871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hopwood D.A.;
261
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DAD---RAGMEEIARLVGAGRIRAT
                            DITLLYRASGQEI--LLGATRFPAS
                                                                                         KYPNLOHVIDAVGSEDSIPEAYKVTADSLPATLLEVVPMTIESIPEE-----IRKDNVKI
                                                                                                                      LVHAAAGGVGHVAVQIAKARGARV-IGTASAAKHE-FLRSLGADETVDYRETDFAEAVK-
                                                                                                                                        LIWGGATAVGQQLIQVAKHINAYTKIVTVASKKHEKLLKSYGADDVFDYHDAGVIEQIKS
                                                                                                                                                                                   RKPSGIDH------VQAGALPLVSLTAWQALV----ERAEVQPG-----QRV
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                                                            --- DVDVVLDTIGGDTSL-RSLRVLRPG--GVVVSILPVGSDDFYEEADRLGVRAVRMLV
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26.5%;
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                                                                                                                                                                                                                                                                                                                                                                     Score 214; DB
Pred. No. 1.6e
53; Mismatches
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RESULT
Q8TSM3
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AC Q8
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Best Local S
Matches 90
                                                             Q8TSM3;
Q8TSM3;
01-JUN-2002
01-JUN-2002
01-JUN-2002
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Q9KFV8;
01-OCT-2000
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Bacillaceae; Bacillus.
NCBI_TaxID=86665;
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01-DEC-2001
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Takami F., Hirama C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=C-125 / JCM 9153;
MEDLINE=20512582; PubMed=11058132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               halodurans and genomic sequence comparison Nucleic Acids Res. 28:4317-4331(2000). EMBL; AP001508; BAB04082.1; -.
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PROSITE; PS01162; QOR_ZETA_CRYSTAL;
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HSSP; P28304; 1QOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Complete genome sequence of the alkaliphilic bacterium Bacillus alcidus subtili
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0107; adh_zinc; 1.
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irama C., Nakamura Y.,
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(TrEMBLrel.
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19,
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Last
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Pred. No. 5e-08;
3; Mismatches 1
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I., Kuhara S.
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NADPH: quinone MA0773.

Last Last

sequence up annotation

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Methanosarcina acetivorans

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01-AUG-1998
01-MAR-2002
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"The genome of Methanosarcina acetivorans reveals extensive metabol
MEDIJINE=98196666; PubMed=9537320; Deckert G., Warren P.V., Gaasterland T., Young W.G., Lenox Graham D.E., Overbeek R., Snead M.A., Keller M., Aujay M., Feldman R.A., Short J.M., Olson G.J., Swanson R.V.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
STRAIN=C2A / ATCC 35395 / DSM 2834;
MEDLINE=21929760; PubMed=11932238;
                                                                                                                                  ADH1 OR AQ 1362.
Aquifex aeolicus.
                                                                                                                                                                                                                                         067374
                                                             STRAIN=VF5
                                                                         SEQUENCE FROM
                                                                                                     NCBI_TaxID=63363;
                                                                                                                                                                 Alcohol
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309 AA;
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                                                                                                                   Aquificae;
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Last sequence Last anno
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Pred. No. 2e-07;
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               A.L.,
Huber
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RESULT 15
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Best Local S
Matches 77
            Query Match
Best Local :
 Matches
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                                                                 EMBL; AP003000; BAB49853.1; -.
InterPro; IPR002085; Adh zn family.
InterPro; IPR002364; QOR_zeta_crystal.
Pfam; PF00107; adh zinc; 1.
PROSITE; PS01162; QOR_ZETA_CRYSTAL; 1.
                                                                                                                                                                          Kaneko T., Nakamura Y., Sato S., Asamizu E., Kato T., Sasa
Watanabe A., Idesawa K., Ishikawa A., Kawashima K., Kimura
Kishida Y., Kiyokawa C., Kohara M., Matsumoto M., Matsuno
Mochizuki Y., Nakayama S., Nakazaki N., Shimpo S., Sugimot
                                                                                                                                                                                                                                                                                                Rhizobium loti (Mesorhizobium lo
Bacteria; Proteobacteria; alpha
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01-JUN-2002
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HSSP; P28304; 1QOR
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                                                                                                                                                                                                                                                                                      Phyllobacteriaceae;
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                                               SEQUENCE
                                                                                                                                           "Complete genome structure Mesorhizobium loti.";
                                                                                                                                                                  Takeuchi C., Yamada M.,
                                                                                                                                                                                                                                        STRAIN=MAFF303099;
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            Similarity
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, Nakayama S., Na...
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Tabata S., Na...
Tabata S., Na...
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28;
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Pred. No. 8e-07
43; Mismatches
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Last annotation updat
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            Score 189; DB 16;
Pred. No. 1.4e-06;
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No. 8e-07;
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16 KAVVKTDVSVPEL---

-KEGTALVKVEAVAGNPTDWK-HIAY--KIGPEGSIL

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ch completed: June 17, 2003, 13:01:27 time : 146 secs

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Post-processing: Minimum Match 0%
Maximum Match 100%
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Perfect score:
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Maximum DB seq length: 2000000000
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10540.652 Million cell updates/sec
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Pred. No. is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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ALIGNMENTS

AUTHORS	REFERENCE	SOURCE ORGANISM	KEYWORDS	VERSION	ACCESSION	DEFINITION	Locus	RESULT 1 YSCL9122/c
Johnston,M., Hillier,L., Riles,L., Albermann,K., Andre,B., Ansorge,W., Benes,V., Bruckner,M., Delius,H., Dubois,E., Dusterhoft,A., Entian,K.D., Floeth,M., Goffeau,A., Hebling,U.,	Eukaryota; Hungi; Ascomycota; Saccharomycotina; Saccharomycetes; Saccharomycetaceae; Saccharomyces. 1 (bases 1 to 29634)	Saccharomyces cerevisiae Saccharomyces cerevisiae		U22383.1 GI:2264349	U22383 Y13138	Saccharomyces cerevisiae chromosome XII cosmid 9122.	YSCL9122 29634 bp DNA linear PLN 01-AUG-1997	

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Neighboring Sequence:
This sequence includes nucleotides 1-22200 of cosmid 9122. The the rightmost cosmid of chromosome 12. The cosmid on the left 9324. This sequence overlaps the right telomeric sequence, accession number Z73327, starting at nucleotide 28299.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequenced by:
Genome Sequencing Center
Genome Sequencing Center
Department of Genetics, Washington University,
St. Louis, MO 63110, USA
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The nucleotide sequence of Saccharomyces cerevisiae chromosome XII Nature 387 (6632 Suppl), 87-90 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
Submitted (18-JUL-1997)
5 (bases 1 to 29634)
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Submitted (08-MAR-1995)
4 (bases 1 to 29634)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nature 38
97313267
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Kirsten,J.
The sequence of S. cerevisiae cosmid 9122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cherry, J.M.
Direct Submission
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    e-mail: yeast-curator@genome.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Saccharomyces Genome Database URL: http://genome-www.stanford.edu/
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gene trna

repeat_unit

SdD

CDS

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RIYGDEMI TIEDMIQSORELER TLEVELLI PS VETVENITERY YELF PELSSTOSKETI PM
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Query Match
Best Local Similarity
Matches 658; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAGTTCCAACCACTCAAAAAAGCCGTCATCATTGAAGGTGACAAAGCTGTTGTTAAAACAG
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SSGKDRNQSLYLDREILLQRQIKKRDEKIKALESKLQSLQEALNYSNEKYRILEDLLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="YLR457C; Weak similarity in central portion of the protein to tropomyosin alpha chain (Swiss Prot. accession number P18442) and kinesin heavy chain (Swiss Prot.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MDSTALKVALGCIATRLAVNSLFPSLQQQLDQSVEFSTPVTSFR
SLQEGIYLLRNNIQVYNHGVVHHPPILIFFLSLFNSDRLISLIYALIDGLIAYQLTEV
TKAFKNLKLKVWLPGLLYAVNPLTLLSCISRSSIIFTNFAISSSLYCILAEGNVLLSS
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/gene="YLR460C"
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PEMQPLQENISPACPTPPYRSRETEKEDETLSPISVDFSSYLS"
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/protein_id="AAB64721.1"
/db_xref="GI:717076"
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                               Submitted (29-APR-1996) Data collected by MIPS on be European yeast chromosome XIV sequencing project. MI Max-Planck-Institut fuer Biochemie, Am Klopferspitz Martinsried, FRG; E-mail; Mewes@mips.embnet.org
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Direct Submission
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NPTDWRHIDFKIGPQGALLGCODAAGQIVKLGPNVDAARFAISGYVLYGVHGASVRFPS
NGAFABYSAISSETAYKPAREFRLGCKOKLPEGPVKSLEGANGLPVSLTYTAGNILTHS
FGLDMTWKPSKAQRDQPILFWGGATAVGQMLIQLAKKLNGFSKIIVVASRKHEKLLKE
YGADELFDYHDADVIEQIKKYNNIPYLVDCVSTTTTIQQVYKGADDLDATYVQLTV
LTEKDIKEEDBRQNNSIEGTLLYLIGGNDVPFGTTTLPADPEYKEAAIKFIKFINPKI
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/db_xref="taxon:4932"
/chromosome="XIV"
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/db_xref="GI:1302076"
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S.cerevisiae v
Z46843
                                                                                                                                                                                       3 (bases 30002 to 31314)
Hjelmstad,R.H. and Bell,R.M.
Hjelmstad,R.H. and Bell,R.M.
The sn-1,2-diacylglycerol cholinephosphotransferase
Saccharomyces cerevisiae. Nucleotide sequence, trans
mapping, and gene product analysis of the CPT1 gene
J. Biol. Chem. 265 (3), 1755-1764 (1990)
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mitochondrial outer membrane component; mitochondrial ribosomal
protein; NH3 permease; Phe-tRNA; sn-1,2-diacylglycerol
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Michaelis,S. and Hersko
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes; Saccharomycetales; Saccharomycetaceae; Saccharomyces.

1 (bases 25310 to 25400)
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Rapamycin sensitivity in Saccharomyces cerevisiae is mediated by a Rapamycin sensitivity in Saccharomyces cerevisiae is mediated by a Rapamycin ris-trans isomerase related to human FK506-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mallet,L., Bussereau,F. and Jacquet,M.
A 43.5 kb segment of yeast chromosome XIV, which contains MFA2,
MEP2, CAP/SRV2, NAM9, FKB1/FPR1/RBP1, MOM22 and CPT1, predicts
adenosine deaminase gene and 14 new open reading frames
Yeast 11 (12), 1195-1209 (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9 (bases 19039 to 20496)
Boguta, M., Dmochowska, A., Borsuk, P., Wrobel, K., Gargouri, A.,
Lazowska, J., Slonimski, P.P., Szczesniak, B. and Kruszewska, A.
NAM9 nuclear suppressor of mitochondrial ochre mutations in
Saccharomyces cerevistae codes for a protein homologous to S4
ribosomal proteins from chloroplasts, bacteria, and eucaryotes
Mol. Cell. Biol. 12 (1), 402-412 (1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5 (bases 17182 to 18759)
Field, J., Vojtek, A., Ballester, R., Bolger, G., Colicelli, J., Field, J., Vojtek, A., Ballester, R., Michaeli, T., Powers, S., Ferguson, K., Gerset, J., Katoaka, T., Michaeli, T., Powers, S., Riggs, M., Rodgers, L., Wieland, I., Wheland, B. and Wigler, M. Cloning and characterization of CAP, the S. cerevisiae gene encoding the 70 kd adenylyl cyclase-associated protein Cell 61 (2), 319-327 (1990)
                                                  Direct Submission
Submitted (29-NOV-1994) Michel Jacquet, Institut de Genetique
Microbiologie, Universite, Paris-sud, Labotatoire Information
Genetique et developpement, Orsay, 91405, FRANCE
On Jun 14, 1995 this sequence version replaced gi:854489.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                             Honlinger, A., Kuebrich, M., Moczko, M., Gaertner, F., Mallet Bussereau, F., Eckerskorn, C., Lottspeich, F., Dietmeier, K., Jacquet, M. and Pfanner, N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Heitman, J., Movva, N.R., Hiestand, P.C. and Hall, M.N. FK 506-binding protein proline rotamase is a target for the immunosuppressive agent FK 506 in Saccharomyces cerevisiae proc. Natl. Acad. Sci. U.S.A. 88 (5), 1948-1952 (1991)
                                                                                                                                                                                                        Unpublished
13 (bases 1 to 43481)
                                                                                                                                                                                                                                                       MEP2
                                                                                                                                                                                                                                                                                            The mitochondrial receptor complex: Mom22 is essential for viability and directly interacts with preproteins Mol. Cell. Biol. 15 (1995) In press
12 (bases 7894 to 9390)
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/organism="Saccharomyces
/strain="alpha S288C"
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/codon_start=1
/label=JTB38
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/gene="orf5"
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2156. .2458
                                                                                                                                                                                                                                                                                            /product="mating pheromone a
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2855. .2971
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GAAGAAATCAGAAAAGATAATGTTAAAATTGATATTACTTTGTTGTATCGTGCATCTGGT
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KSTYQFDKYDKERICGEIARDEHKFLSDERLFKSYSLQCAKVGLPIIVSSRDFYLRMR
CEGQQFLVQFSHVDELIYMAMYLNMGISLSLDLELREMFYRSVPRRHFRARRFKQH
NKNKNKKRGRQNSDRIDSRSHSLLLRRSHTSSVVTKVATGNERFTNKSRSRSLSLLPF
SVSDASHDSNGFNDSGSLAGESSQTDFCGLFTSKLRNFFKTDSSSRKNSNMDIGQKMR
SKELNSVQEEIDDNGSTTNTNTSVLSSTFSFTAHSVLTAQTSIHENFRSRSNSNPIDF
LRCDRSVLKINNFEFVYEGTGRSTISNSAEFTNAHSVLTAQTSIHENFRSRSNSNDIDDEDDDD
AVEEDDBGYVEDDDINKLYYLDERESRYENADVEYGTIFSTKSFSVTGCLNHDFPKK
LSLKCGNKNQSSNAPATOLVSRKRYIKDSLRCIKELTEDHFWOKITIFKFALFP
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Pred. No. 2.9
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1015
                           6 (bases 1 to 316613)
Sor, F., Cheret, G., Fabre, F.,
Sequence of the HMR region of
                                                                                                                                                                                                                                                               4 (bases 1 to 316613)
Benit, P., Chanet, R., Fabre, F.,
Sequence of the sup61-RAD18 re,
Saccharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 316613)
Rad,M.R., Lutzenkirchen,K., Xu,G., Kleinhans,U. and Holler
The complete sequence of a 11,953 bp fragment from C1G on
Chromosome III encompasses four new open reading frames
Yeast 7 (5), 533-538 (1991)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Saccharomyces cerevisiae
Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
Saccharomycetales; Saccharomycetaceae; Saccharomyces.
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                                                                                                                                                               Bolle, P.A.,
The complete
                                                                                                                                                                                                                                               Saccharomyces cerevisiae
Yeast 8 (2), 147-153 (1992)
                                                                                                                                                                                                                                                                                                                                                                                               A putative serine/threonine
                                                                                                                                                                                                                                                                                                                                                                                                                                Wilson, C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The complete sequence of a 10. chromosome III centromere of S Yeast 8 (1), 61-70 (1992) 92254505
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Biteau, N., Fremaux, C.,
                                                                                                               Yeast 8 (3),
                                                                                                                                                                                                                                                                                                                                                              of Saccharomyces cerevisiae
Yeast 8 (1), 71-77 (1992)
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                                                                                                                                       (bases I to 316613)
(lases I to 316613)
Ile,P.A., Gilliquet,V., Berben,G.,
e complete sequence of K3B, a 7.9
- hhomosome III, reveals the
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(3),
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 215-222 (1992)
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                                                 Faye, G.
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Saccharomyces
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jion on chromosome
                                                                                                                                              G., Dumont, J. and Hilger, F..9 kb fragment between PGK1 and he presence of seven open reading
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                                  Fukuhara, H.
III of Saccharomyces
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I of
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                                                                                        Yeast 11
95373282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12 (bases 169581 to 171116; 171683 to 172169)
Agostoni Carbone,M.L., Panzeri,L., Muzi Falconi,M., Carcano,C.,
Plevani,P. and Lucchini,G.
Nucleotide sequence of 9.2 kb left of CRY1 on yeast chromosome
from strain AB972: evidence for a Ty insertion and functional
analysis of open reading frame YCR28
Yeast 8 (9), 805-812 (1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Defoor,E., Debrabandere,R., Keyers,B., Voet,M. Nucleotide sequence of D10B, a BamHI fragment ochromosome III of Saccharomyces cerevisiae Yeast 8 (8), 681-687 (1992) 93070606
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1574927
                                     MIPS.
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                                                                                                                                                                                                                                  14 (bases 1 to 315338)
Slonimski, P.P. and Brouillet,S.
A data-base of chromosome III o
Yeast 9 (9), 941-1029 (1993)
                                                                                                                                                                                                                                                                                                                               sequences in yeast chromosome
Yeast 9 (7), 753-759 (1993)
93377412
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The complete sequence of a 6146 bp fragment of Saccharomyces cerevisiae chromosome III contains two new open reading frames Yeast 8 (7), 569-575 (1992)
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The complete sequence of a 10.8 kb segment distal of SUF2 on the right arm of chromosome III from Saccharomyces cerevisiae reveals seven open reading frames including the RVS161, ADP1 and PGK gen
Direct Submission Submitted (16-MAR-1992) MIPS, D-8033 Martinsried,
                                                                                                                                                                                                      8266725
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Yeast 8 (5), 409-417 (1992)
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                                                                                                                              protein Ycr77p
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                                                                                                                                                                                                                                                       of Saccharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                    closely associated with ARS consensus
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Antoine,G., Anwar,R., B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . and Volckaert,G.
on the small-ring
                                                                                                                                           cytosolic
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ALTERED GENETIC CONTINUES:

ALTERED GENETIC CONTINUES:

YCL076w, PEP Y, peptide elongated N-terming PEP Y, 3 aa exchanged

YCL073c, PEP Y, 4 aa exchanged

YCL068c (C_F190->C_E260), PEP Y, peptide

70 aa YCL065w, PEP Y, 1 aa exchanged
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           following lines present a summary of the altered entities. The resequenced chrIII contig is 316613 bp with GCG-check: 429 GENETIC ENTITIES valid no longer: YCL012w -> YCL012w / C B1367 + C C231->C A1636), PEP Y, ORF in identical form now C-terminal part of YCL014w. (A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission
Submitted (17-JUN-2001) MIPS Yeast Genome Database,
Ingolstaedter Landstrasse 1 D-85764 Neuherberg, Ger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission
Submitted (29-JAN-1996) R. Gromadka, Protein Biosynthesis,
Institute of Biochemistry and Biophysics, Pawinskiego SA,
Poland, Electronic Mail Address: robert@psd.ibb.waw.pl
revised by [21]
21 (bases 1 to 316613)
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                                                                                                                                                      stop codon after 45 aa.
NEW GENETIC ENTITIES:
YCL26c-b (C_E193(YCL027c-a)),
YCL021w-a (C_C125), PEP Y, ne
                                                                                                                                                                                                                                                    YCR062w (YCR061w + YCR062w -> YCR061w / C_A583 + C_B120 -> C_B631), PEP Y, ORF in identical form now C-terminal part of YCR061w.
YCR068w-a (YCR068w + YCR068w-a -> YCR068w / C_C429 + C_A145 -> C_A520), PEP Y, ORF in identical form now C-terminal part of YCR068w-a YCR1050 (C_F111, former ORF in region corresponding to coord.
307255-307587(C)) is obsolete, open reading frame is destroyed by single nt exchange resulting in a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the nt sequence of YCL014w leads to a elongated polypeptide encoded by the Bud3p polypeptide from the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Resequencing project, achieved by the joint effort of G. Valles as G. Volckaerts laboratories. Munich information center for protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (14-FEB-1995) MIPS, D-8033 Martinsried, FRG. Data collected by MIPS on behalf of the European Yeast Chromosome Sequencing project. Update originating from E.J. Louis
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    On Jul 3, 2001 this sequence version replaced gi:1907116. The contig sequence which has been released to the file s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mips-yeast-adm@gsf.de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequencing project. Update Revised by [20]
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Genomic exploration of the hemiascomycetous yeasts: 1. A set of yeast species for molecular evolution studies
FEBS Lett. 487 (1), 3-12 (2000)
                                                                                                                                                                                                                                                                                                            lactis var. lactis, Kluyveromyces marxianus var. marxianus, Pichia angusta, Debaryomyces hansenii var. hansenii, Pichia sorbitophila, Candida troppicalis and Yarrowia lipolytica. Genomic inserts of 3 to 5 kb were prepared and both extremities were sequenced. See keywords for description of this sequence and for the sequence of the other extremity of this insert.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (06-SEP-2000) Genoscope - Centre National de Sequencage, 2 rue Gaston Cremieux, CP 5706, 91057 EVRY cedex, FRANCE. (E-mail : seqref@genoscope.cns.fr - Web : www.genoscope.cns.fr)
This STS is part of a random genomic sequencing program of thirteen yeast species: Saccharomyces bayanus var. uvarum, Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zygosaccharomyces rouxii
Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    exiguus, Saccharomyces servazzii, Zygosaccharomyces rouxii,
Saccharomyces kluyveri, Kluyveromyces thermotolerans, Kluyveromyces
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de Montigny, J., Straub, M.,
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Genomic exploration of the
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                      /note="similar to Saccharomyces cerevisiae ORF YLR460c similarity to C.carbonum toxD protein | similar to Saccharomyces cerevisiae ORF YNL134c | similarity to C.carbonum toxD gene | "
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                                                                                                                                            /clone_lib="AR0AA"
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                                                                                                                                                                                                                                            Submitted (07-SEP-2000) Genoscope - Centre National de Sequencage, 2 rue Gaston Cremieux, CP 5706, 91057 EVRy cedex, FRANCE. (E-mail: segref@genoscope.cns.fr) Web: www.genoscope.cns.fr)
This STS is part of a random genomic sequencing program of thirteen yeast species: Saccharomyces bayanus var. uvarum, Saccharomyces exiguus, Saccharomyces servazzii, Zygosaccharomyces rouxii, Saccharomyces kluyveri, Kluyveromyces thermotolerans, Kluyveromyces lactis var. lactis, Kluyveromyces marxianus var. marxianus, Pichia angusta, Debaryomyces hansenii var. hansenii, Pichia sorbitophila, Candida tropicalis and Yarrowia lipolytica. Genomic inserts of 3 to 5 kb were prepared and both extremities were sequenced. See keywords for description of this sequence and for the sequence of the other extremity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Saurin, W., Tekaia, F., Toffano-Nioche, C., Wesolowski-Wincker, P. and Weissenbach, J. Genomic exploration of the hemiascomycetous yeasts: yeast species for molecular evolution studies FEBS Lett. 487 (1), 3-12 (2000)
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Bolotin-Fukuhara, M., Bon, E., Bottier, P., Casaregola, S.,
de-Montigny, J., Dujon, B., Durrens, P., Lepingle, A., Llorente, B.,
Malpertuy, A., Neuveglise, C., Ozier-Kalogeropoulos, O., Potier, S.,
Malpertuy, A., Neuveglise, C., Ozier-Kalogeropoulos, O., Potier, S.
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T7 end of clone AT0AA001G11 of library AT0AA from strain CBS
of Saccharomyces servazzii, sequence tagged site.
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/note="end :
                                                               /db_xref="taxon:27293"
/clone="ATOAA001G11"
                                                                                                                           organism="Saccharomyces/strain="CBS 4311"
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complement(<320. .>935)
/note="similar to Saccharomyces cerevisiae
similarity to C.carbonum toxD gene]

ORF

1 putative similar to

frameshift(s)

Saccharomyces cerevisiae ORF to C.carbonum toxD protein]

toxD protein

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Bi,E. and Pringle,J.R.
Sequencing and characterization
Unpublished (1994)
                                                                                                                                                             Saccharomyces cerevisiae L31649
                                                              Eukaryota; Fungi; Ascomycota; Saccharomycetales; Saccharomycetales;
                                                                                              Saccharomyces cerevisiae
                                                                                                                Saccharomyces cerevisiae
                                                                                                                                               L31649.1 GI:469465
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complement(<329, .>920)
/note="similar to Saccharomyces cerevisiae ORF
similarity to C.carbonum toxD gene ]
1 putative frameshift(s)"
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                                                                                                                                                         toxD gene.
Cochliobolus carbonum.
Cochliobolus carbonum
East
2 (h
             Direct Submission
Submitted (09-OCT-1995) Y. Cheng, Michigan State University,
MSU-DOE Plant Research Laboratory, Room 210 Plant Biology Bu
East Lansing, Michigan 48824-1312, USA
                                                                                                          Cochliobolus carbonum
Eukaryota; Fungi; Ascomycota; Pezizomycotina;
Pleosporates; Pleosporaceae; Cochliobolus.
1 (bases 1 to 1506)
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SLQEGIYLLRNWILPGLLYAVNPLFILLSCISRSSIIFTWFALISSSLYCILAEGRWLLSS
WISIGSYLSVYWHLPGLLYAVNPLFILLSCISRSSIIFTWFALISSLYCILAEGRWLSWS
FLTQVYGSIITFEKVFPHLGAMKSWRQRILSAIUSILSLLILLILAEYSILGSQSWS
FLTQVYGSIITFEKVFPHLGLAWYFFIEMFDTFIFFKAVFNIFIAVFITFETLFHLAVLL
DFFYAFILCIGWILVIRKEYPSLGDAGFFFSFLDFFTFLFGYLRYDIGIPNFKLKVT
APIFYHLWVVLGSGNSNFFYAISLVYALAIASILVDLNWAMLRIEYDNGIPNFKLKVT
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/db_xref="taxon:4932"
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/gene="cdc91"
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Best Local Similarity
Matches 131; Conserv
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                                                                                                                           sequence.
AC003672
     Arabidopsis thaliana.
Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
                                                                                         HTG
                                                                                                                                                              Arabidopsis
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Walton, J.D
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/db_xref="G:1027511"
/db_xref="G:1027511"
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GSTATGTLAIQLAKLSGYRVITTCSPHHFELMKSLGADLVFDYHEITSADHIRRCTQN
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HC-toxin"
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thaliana chromosome
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                                                                                                           GI:20197021
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Rounsley, S.D., Kaul, S., Lin, X., Ketchum, K.A., Crosby, M.L., Brandon, R.C., Sykes, S.M., Mason, T.M., Kerlavage, A.R., Adams, M.D., Somerville, C.R. and Venter, J.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (27-FEB-2002) The Institute for Genomic Research, Medical Center Dr. Rockville, MD 20850, USA, cdtown@tigr.or On Apr 18, 2002 this sequence version replaced gi:6598391.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (09-MAR-2000) The Institute for Genomic Medical Center Dr., Rockville, MD 20850, USA (bases 1 to 109375)
Town,C.D. and Kaul,S.
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                                                                                                                       translation="MAMRLKSMATLPKLIQSMRKEVPKHSNPVLPSLRRAFSLYDQIN LIDNVPEDQLRFQEFNDTSFTVNGVKYEGSLLCVGNLLMSWSPRKFSEITTDSLSIFQ TVRPIPELIVGCGRDIHPVTPEVRQFVKSLGMKLETVDSRNAASTYNILNEEGRVVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                PLKQLHPINTWVGAVVGAIPPLLGWAAASGQISYNSMILPAALYFWQIPHFMALAHLC
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5646. .5813,5885. .5954,6035. .6116,6206. .>6380)
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                                                                                                                                                                                                                                                                                                                                                                           Ceres:8402"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gi 15028298 gb AY045952 1 "
join(105. 489,577. .709,859.
1708. 1811,1901. .2347)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              , 2002 this sequence version 
location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                           gene="At2g44525"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 oin(170. .489,577. .709,859.
.708. .1811,1901. .2241)
gene="At2g44520"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'clone="F16B22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       db_xref="taxon:3702"
chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="Arabidopsis
                                                                                                                                                                                                                                      codon_start=1
                                                                                                                                                                                                                                                                                                             gene="At2g44525"
                                                                                                                                                                                                                                                                                                                                       744. .4019
                                                                                                                                                                                                                                                                                                                                                       oin (2606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="F16B22.1;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       map="m336"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cultivar="Columbia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . .109375
                                                                                                                                                                                                                                                          gene="At2g44525"
                                                                                                                                                                                                                                                                                               oin(2640.
                                                                                                                                                                                                                                                                                                                                                                                         note="F16B22.47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start=1
                                                                                       .6380
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521:104896. .118327)."
                                                                                                                                                                                                                                                                                             .2812,2969.
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                                                                                                                                                                                                                                                                                                                                                                                         supported by
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                                                                                                                                                                                                                                                                                                                                                     .3085,3370.
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                                                                                                                                                                                                                                                                                                                                                     .3404,3546.
                                                                                                                                                                                                                                                                                                                                                                                         length
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                                                                                                                                                                                                                                                                                                                                                                                           CDNA:
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CDS

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mRNA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEAQRSGKLPPNQKVTWRGDSALKDGSDAHIDLTGGYYDAGDNMKFGFPLAFTTTMIA WSNIEWGSELKAHHEQCNSLRALKWATDYLIKAHEQPNVLYGQVGEGNSDHKCWMREE DMTPRTSYNIDAQHPGSDLAGETAAAMAAASIAFAPFDKAYANILIGHAKDLFAFAK AHPGLYQNSITNAGGFYASSGYEDELLWAAAWAHRATNDQIYLNYLTQAGSTGGFRSVFAWDDKFVGAQVLMAKLALERKVGSNGKIAEYKSMAEQFICNCAQKGSNNVKKTPGGL
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                                                                            complement (join (12424. 13943. .14164))
                                                                                                                                                                                                                                                                                                 AWDDKFVGAQVLVAKLALEGKVESSEQIVEYKSMAEQFICNCAQKGDNNVKKTPGGLL
YFLPWNNLQYTTAATFVLSAYSKYLEAAKASIDCPDGALQASDLLQVARSQVDYILGS
NPQKMSYMVGVGTNYPKKPHHRAASIVSIRQDKTPVTCSGGYDKWYNNPAPNPNVLAG
                                                                                                                                                                                                                                                                                                                                                                         FEAQRSGKLPPNQRVTWRGDSALRDGSDAHIDLTGGYYDAGDNMKFGFPLAFTTTMLA
WSNIEMASQLRAHHEKGNALRALKWATDYLIKAHPQDNVLYGQVGEGNSDHKCWRRDE
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AHRGLYQNSIPNAGGFYASSGYEDELLWAAAWLHRATNDQIYLDYLTEAETGGPRTVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(join(9891. .10208,10319. .10600,10686. .11336,
11431: .11652))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(join(<9891. .10208,10319. .10600,10686.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (9891. .11652)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GALVGGPNENDVYGDERSNFQQAEPATVTVAPFVGVLAAVF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (join (6851. .7168, 7280. .7561, 7648. .8301,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (6742. .6763)
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                                                                                                                                                       13943.
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SNPQKMSYMVGVGTNYPKKPHHRAASIVSIRKDKTPVTCSGGYDKWYNNPAPNPNVLM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8399.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(join(<6851. .7168,7280. .7561,7648. .8301,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (6851.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            synthetase"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="F16B22.4"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
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                                                                                                                                                                           lement (join(<12424.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .>11652)
                                                                                                   .12741,12834. .13115,13199.
                                                                                                                                                                           .12741,12834.
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                                                                            DEFINITION
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PFMALIP2 98734 bp Dt Plasmodium falciparum 3D7 chromosome ***, in unordered pieces. AL031745 GI:5731893
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DNA me 1,

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linear HTG 11-AUG-1999
* SEQUENCING IN PROGRESS

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Query Match
Best Local Similarity
19908 ATTACTTTTCCAGAAGTTTTACTGTGCAGTTAACAATAACGTAGTCCAG 19956
                                                                                                                                                                                                                19848 TCTCTCCCTATGAACAATÄÄTÄAAÄCAAATACAAATAAACATCAAAAAAATGAATTAGTC 19907
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                                                                                                           980 CACACCTTAACAACGGTGATATCCATCATATGAATATTAAAGTTTTCAG 1028
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            860 AAATTGATATTACTTTGTTGTATCGTGCATCTGGTCAAGAAATTCTATTGGGTGCAACAA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
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/translation="MSQLKIGSSQCLWTSICIVLFVLSMARGAVSRNYGDALTKSLLY
/EAARSGKLPSNQRVTWRGDSALRDGSDAHVDLTGGYYDAGDNMKFGFPLAFFTTWLA
WSNIEMATQLKAHQEQENALAALKWATDFLIKAHPEPNVLYGQVGDGNSDHECWMRPE
DMTTPRPSFRIDAQHPGSDLAGETAAAMAAASIAFAPSDEAYAQILIGHAKELFEFAK
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GSNPKKMSYMVGYGTNYPKRPHHRGASIVSIKNDPKPVTCNGGFEAWYNNPKPNPNLL
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16557. .16778))
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Pred. No. 1.
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Best Local Similarity
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Order of segments is not known; 800 n's separate segments.
* NOTE: This is a 'working draft' sequence.
* This record will be updated with the finished sequence
* as soon as it is available and the accession number will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            On Aug 12, 1999 this sequence version replaced gi:5706497. For more information about this sequence or the Malaria Project, see http://www.sanger.ac.uk/Projects/P_falciparum. IMPORTANT: This sequence is unfinished and does not necessarily represent the correct sequence. Work on the sequence is in progress and the release of this data is based on the understanding that the sequence may change as work continues. The sequence may be contaminated with foreign sequence from E.coli, yeast, vector,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota, Alveolata, Apicomplexa, 1 (bases 1 to 98734)
Bowman, S., Churcher, C., Harris, B., and Barrell, B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (24-SEP-1998) P.falciparum Genome Sequencing Consortium, The Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambrid
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On Aug 12, 1
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Plasmodium falcip
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                                         <u> АТСТСССАССТСАСТСААССТАТААААСААССТАААААСААААА</u> 1088
                                                                                          TAGATAATGTTTTATCTAATCTGTGTAGTGATAACAATATATGTAGTGATGATAATATAT
                                                                                                                                                                                                                                                                                                                                                                                                                         AAGTGGTTCCAATGACCATTGAAAGCATTCCTGAAGAAATCAGAAAAGATAATGTTAAAA
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nilarity 43.2%;
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Pred. No. 1.6;
0; Mismatches 299;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 (bases 1 to 13844)
Childress, D., Zeng, Q.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (bases 1 to 13844)
Nolling, J., Breton, G., Omelchenko, M.V., Markarova, K.S., Zeng Nolling, J., Lee, H.M., Dubois, J., Qiu, D., Hitti, J., Wolf, Y.I., Gibson, R., Lee, H.M., Dubois, J., Qiu, D., Hitti, J., Wolf, Y.I., Tatusov, R.L., Sabathe, F., Doucette-Stamm, L., Soucaille, P., Daly, M.J., Bennett, G.N., Koonin, E. V. and Smith, D.R. Genome sequence and comparative analysis of the solvent-produced bacterium clostridium acetobutylicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Clostridium acetobutylicum Clostridium acetobutylicum
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AE007561 AE001437
AE007561.1 GI:15023317
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Clostridium acetobutylicum ATCC824
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RIAEEVMTPRTEVYLINIDTPLNKYVDELLEIKYSRVPVFEGDSDNIIGILYIKDFIV
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LSEEGNRNAQILEKLIKEPTKFLSTVQVGITLASFFSSAFAATGLSDMFGGYLKKINI
PYSSQVALIVVTIVLSYFTLVFGELFPKRIALQKSEKIAMLAARPILYVSKITVPFVK
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35. .1466
                                         gene="CAC0462"
                                                                                        gene="CAC0462"
                                                                                                                                      KKNQLLKFEEEINDLQCPVLNRIINEKNT"
                                                                                                                                                                                                        protein_id="AAK78441.1"
/db_xref="GI:15023319"
                                                                                                                                                                                                                                                                                product="Mercuric resistance
                                                                                                                                                                                                                                                                                                      codon_start=1/
transl_table=11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           product="CBS-domain containing protein, YHDP B.subtilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    organism="Clostridium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zeng, Q. and Smith, D.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA linear BCT 27-usection 49 of 356 of the
                                                                                                                                                                                                                                                                                operon
                                                                                                                                                                                                                                                                                regulatory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          solvent-producing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27-JUL-2001
                                                                                                                                                                                                                                                                                protein,
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/translation="mkdsnleikilkokiydetssipihnlkkkliqlegtqkklaski
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FFNLYSREYGYAYITMIKPSLNKSKYIGGIAMLSLPSDANSKPCCQKIIISSSKINRE
                                                                                                                                                                                                                                                                                                                                                                       /gene="CAC0466"
5832. .6254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="Predicted transcriptional regulator, dicA/hipB/ansR family"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (4841. .5632)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="AAK78444.1"
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/trānslation="MQINQFKIEIFIPKEYVEKLGDKLSEANVGKIGNYDHCMATNIV
/trānslation="MQINQFKIEIFIPKEYVEKLGDKLSEANVGKIGNYDHCMATNIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MKTHKLLSIVLASVLLTSSFTGCTFASNKKKITPDTANAQNASTSVBSPITKASKKVLPSVVGVTTYIERDNTKLBGVGSQMIIDSGYILTNNHVAQMTSKDLKVSLYDGSSIGAKPHAANESDLSIIKIDKSIKULQAVTLGDSSKVDIEGTALAIGNEKDLKVSLYDGSSIGAKPHAANESDLSIIKIDKSIKULQAVTLGDSSKVDIGETALAIGNEVDLGLAVGTTYDGASIGAVNRTVEAGEGVFMEDLIQTDASINPGNSGGPLIDANGNVIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (3180. .4226)
/gene="CAC0463"
complement (3180. .4226)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /t-amblation="MIVKAKFVKGFIRDVHPYGCRRBVLNQIDYCKKAIGFRRPKKVL
IVGASSGFGLATRISVAFGGPEAHTIGVSYETGATDKRIGTTAGWYNNIFFKEFAKKKG
LVAKKFIEDAFSNETKDKVIKYIKDEBGKIDLFVSLAAPRRKDYKTGNYTTSRIKTI
LODEEGFTIDVERBITLKKVSSASIEBIETRKVMGGEDWQEWGEELLYEDCFSDKA
TTIAYSYIGSPRTYKIYREKNIHENCIMQIERMFSEKIYSNEKIQFEDDKGRLRMD
KASAYIFFFPLYAALLYKVKKEKNIHENCIMQIERMFSEKIYSNEKIQFDDKGRLRMD
KASAYIFFFPLYAALLYKNKEKNIHENCIMQIERMFSEKIYSNEKIQFDLGVDYSKDLDIEL
                                                                                                                                GKLKKGYMNIDYFTWWLVKNKAVGIKSPSIDSLKLGEF"
                                                                                                                                                                                                                                                                                                                                                                                                                                5832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (4841. .5632)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PILNQLFENNR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SGEKTVNVKIQSST"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GIYVYNISPNSGAAAAGINKGDIILSVNGKNINTMNELRESIYTIGANNTVSLKLKT#
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="Serine protease
/protein_id="AAK78443.1"
/db_xref="GI:15023321"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LRKLEP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SFDILNNFLCFKSERGSFGNIKISRYEDEKVYDFITNLNEETKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein_id="AAK78445.1"
db_xref="GI:15023323"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene="CAC0465"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'gene="CAC0465"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /NSAKITSAEGIGFAVPINIVKPVLKSLKTTGQFKTPVIGIIGLDKSMNGYLNLNFEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAK78442.1"
/db_xref="GI:15023320"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             product="Protein of short-chain alcohol dehydrogenase
codon_start=1
                        gene="CAC0467"
                                                                               'gene="CAC0467"
                                                                                                                                                         `EFMTIITDEFTEGEINLLKKIHDKLKFNSKVKGRYVSLDDVGKVDLQMKPYIYVEN
                                                                                                                                                                                                                                      product="Hypothetical protein"
protein_id="AAK78446.1"
                                                                                                                                                                                                                                                                                       codon_start=1
transl_table=11
                                                                                                                                                                                                                                                                                                                                                 'gene="CAC0466"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          product="Protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="CAC0464"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="CAC0464"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transl_table=11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene="CAC0463"
                                                                                                                                                                                                                db_xref="GI:15023324"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        start=1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         id="AAK78444.1"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Do (heat-shock protein)"
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CDS

gene

SdC

gene

CDS

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Query Match
Best Local Similarity
CTAGTCCAGAATATCATGAAGCCACAGTTAAAGTTCGTTAAGTTTATAAATCCACACCTTA 988
                                                                                                                          TTACTTTGTTGTATCGTGCATCTGGTCAAGAAATTCTATTGGGTGCAACAAGATTTCCTG
                                                                             ATAACATATTTTTTTAAAGAATTTGCTAAAAAAAAGGATTAGTTGCAAAAAACTTCATTG
                                                                                                                                                                            TTGGAGTATCCTATGAAACAGGAGCTACAGATAGAAGAATAGGAACAGCGGGATGGTATA
                                                                                                                                                                                                                       TTCCAATGACCATTGAAAGCATTCCTGAAGAAATCAGAAAAGATAATGTTAAAATTGATA
                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                 9426. .9998

/gene="CAC0471" ,

/codon_start=1

/transI_table=11
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LTLVSRTAVTFQEPLLTNYAEKNLYSSNLIVIFNSIILVSGAASILGAVLIFTFQRMF
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ISVAALTVGALAPIYAFKIVPNLRATCVTLSSVVNGIAQILMTIFIDPQMSIMTEEVM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9426. .9998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8009. .8584
/gene="CAC0469"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  / trānslation="MIKAILMDSGKYLNKPATGEWFIPPKFFYYVDWRRRPNTIPLIKR
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FAEILKKYGADTYIGIIASIIMGSTETIFYTITVYYGAIKIKNIRHTLMAAIMADMTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="Spore maturation protein A
/protein_id="AAK78449.1"
/db_xref="GI:15023327"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8009.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="HAD superfamily hydrolase"
/protein_id="AAK78448.1"
/db_xref="GI:15023326"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EKKCSEEDFKNCVLAMVGSKVAGTFAAIFILIPASFAIVFVAKGVDFISRI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="Spore maturation protein B
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9596. .9117
/gene="CAC0470"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NPAIIVIPTIVTSVTVAIMGLIYCKILQRHF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RRIKSIRNLKQLEEIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'gene="CAC0471"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'note="spmB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene="CAC0470"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GNAATPFGIKTMEEMQKINKKKSTATNDMAKFLVINAACIQLLPTTIISIRAACGSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     translation="minyiwfififyggiivgvlsgngstlsssiinstessyklmist/
-Gimclwcgvmriaeksgltdklsivlrpilkivfkdisknnnvmgpmimnitsnmlg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transl
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7119. .7823
/gene="CAC0468"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'gene="CAC0468"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein_id="AAK78447.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (DAH B.subtilis"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IVAILVVRFMGI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon_start=1
                                                                                                                                                                                                                                                                                             4.3%;
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                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                             Score 47.4; D. Pred. No. 2.3;
                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                      DB
                                                                                                                                                                                                                                                                       91;
                                                                                                                                                                                                                                                                                                                      ۲.
                                                                                                                                                                                                                                                                                                                    Length 13844;
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                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                            Gaps
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SOURCE
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VERSION
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HSJ106901
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                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
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                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                          source
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                                                                                     repeat_region
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repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       numbers given in the feature table with their source databases:
Em:, EMBL; Sw:, SWISSPROT; Tr:, TREMBL; Wp:, WORMPEP; Information
on the WORMPEP database can be found at
the workpep database can be found at
the entire insert of clone RP5-106901 The true left end of clone
RP4-738116 is at 92256 in this sequence. This sequence was finished
as follows unless otherwise noted: all regions were either
double-stranded or sequenced with an alternate chemistry or covered
by high quality data (i.e., phred quality >= 30); an attempt was
made to resolve all sequencing problems, such as compressions and
repears; all regions were covered by at least one plasmid subclone
or more than one M13 subclone; and the assembly was confirmed by
restriction digest. This sequence was generated from part of
bacterial clone contigs of human chromosome 20, constructed by the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2343
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   corresponding to the overlapping clone, as we submit sequences with only a small overlap as described above.

The following abbreviations are used to associate primary accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   requests: clonerequest@sanger.ac.uk
On May 11, 1999 this sequence version replaced gi:4678553.
During sequence assembly data is compared from overlapping clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human DNA sequence from clone RP5-106901 on chromosome 20. Con part of the gene for a novel protein similar to a low density lipoprotein-related protein LRP16 and STSs, complete sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sanger Centre Chromosome 20 Mapping Group. Pube found at http://www.sanger.ac.uk/HGP/Chr20
RP5-106901 is from the library RPCI-5 construct
Pieter de Jong. For further details see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Where differences are found these are annotated as variations together with a note of the overlapping clone name. Note that the variation annotation may not be found in the sequence submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (15-MAR-2001) Sanger Centre, Hinxton, Cambridgeshire, CB10 1SA, UK. E-mail enquiries: humquery@sanger.ac.uk Clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 92357)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HSJ106901
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                                                                                                                                                                                                                                                                                                                                                                                                                                    http://www.chori.org/bacpac/home.htm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
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                                                                                                                                                                                                                                                                                                                                                                                                                  pCYPAC2.
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445. .535
                                                                                          /note="match: STS:
1603. .2171
                                                                                                                                                                                                                                                                  clone="RP5-106901"
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'db_xref="RZPD:RPCIP7040011069"

'db_xref="taxon:9606"

'chromosome="20"
                    883. .4140
note="L2 repeat: matches 2480.
                                                                                                                                                      note="L2
                                                                                                                                                                                               note="MIR repeat: matches 110.
                                                                                                                                                                                                                                                                                                                                                                                            ocation/Qualifiers
                                                                   note="MLT2CA repeat: matches 6.
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         . 5509
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                                                                                                                                                    repeat: matches 2653.
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                                                                                                                                                                                               .200 of consensus"
                                                                                                                                                      .2708 of consensus"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (11896.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   consensus
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/note="MIR repeat: matches 66.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="LTR37B repeat: matches 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note="LIMC5 repeat:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               705. .9306 note="THEIC-internal repeat: matches 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="L1MC5 repeat: matches 7560. .7913
                                                                 note="L2 repeat: matches 2634.
                                                                                                                                                                                                                                                                                                         9985. .20378
                                                                                                                                                                                                                                                                                                                                                                                                                                                         note="MIR repeat: matches 175.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="L2 repeat: matches 2689.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="MER5B repeat: matches 44.
5460. .15919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2016. .12114
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="THB1C repeat: matches 1. .371 of consensus"
687. .9770
                                                                                                              note="MER61B
                                                                                                                                                    note="AluSg1
                                                                                                                                                                                               note="12 copies 4 mer tcat 77%
                                                                                                                                                                                                                                       note="MER69 repeat:
                                                                                                                                                                                                                                                                                  note="L1MD2 repeat: matches 5686. .6121 of consensus"
                                                                                                                                                                                                                                                                                                                           note="MER69 repeat: matches 2426.
                                                                                                                                                                                                                                                                                                                                                      9482. .19561
                                                                                                                                                                                                                                                                                                                                                                     note="MLT1A1 repeat: matches 1.
                                                                                                                                                                                                                                                                                                                                                                                                              note="L2 repeat: matches 2598.
                                                                                                                                                                                                                                                                                                                                                                                                                                         8990. .19101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8914. .18999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8905. .18964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note="MLT2B repeat:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="MIR repeat: matches 4. .262 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               note="L2 repeat: matches 2275.
6557. .16805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="13 copies 4 mer tttg 82%
5352. .15460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note="L2 repeat: matches 2125.
5257. .15299
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5118. .15242
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note="match: STS: Em:HSPF12C11 Em:Z94565"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note="AluSq repeat:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note="58 repeat: matches 7. .90 of consensus"
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                        repeat: matches 2408.
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                                                                                                            matches 7.
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                                                                   .2709 of consensus"
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                           .2697 of consensus"
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                                                                         GGAAGCGAAGATAGTATCCCCCGAGGCCTATAAAGTCACAGCAGATAGTCTACCTGCCACA
                                                                                                                 Conservative
                                                                                                                                                                                          49468. .49525
/note="L1MC5 :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="L1MB6 repeat: matches 5488. .6171
44255. .44294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41854. .42272
/note="L2 repeat: matches 1377.
42557. .42851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                37193. .37331
/note="MER58A repeat: matches 81.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35695. .35860
/note="MIR repeat:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31368. .31840
/note="LTR37B repeat: matches 1. .468 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="L1MA3 repeat: matches 4167. .6304 of consensus"
29755. .30565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="L2 repeat: matches 2038. .2384 of consensus"
25568. .25664
/note="LTR29 repeat: matches 515. .617 of consensus
                                                                                                                                                                                                                                                /note="L2 repeat: matches 2626. .2653 of consensus"
49339. .49430
                                                                                                                                                                                                                                                                                                                          /note="L1M4 repeat: matches 3552.
18261. .48573
                                                                                                                                                                                                                                                                                                                                                                 17944. .48244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37957. .38255
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                35966. .36119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31864. .33026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="MER34 repeat:
26540. .28647
                                                                                                                                                                                                                              note="MIR repeat: matches 137. .227 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                   note="12 copies 2 mer tg 95% conserved"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14681.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="20 copies 2 mer ca 90% conserved"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="L2 repeat: matches 2362. .2707 of consensus"
11385. .41697
note="LTR16C repeat: matches 86. .387 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note="L2 repeat: matches 2671. .2737 of consensus"
15600. .35623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="Tigger3b repeat: matches 7.
3105. .33174
                                                                                                                                                                                                                                                                                      note="LIMC4 repeat: matches 7218. .7522 of consensus"
9230. .49257
                                                                                                                                                                                                                                                                                                                                                                                 note="LTR16A repeat: matches 16.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="MER63 repeat: matches 641. .988 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6252. .46605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note="MER47A repeat: matches 29.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note="L1MA4 repeat: matches 5473. .6300 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               note="AluY repeat: matches 1. .304 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="AluSx repeat: matches 1. .295 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="MLT11 repeat: matches 72.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note="MIR repeat: matches 36. .198 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="12 copies 2 mer aa 100% conserved"
                                                                                                                               4.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           e="MER63 repeat: matches 988.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .46920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .46982
                                                                                                               0;
                                                                                                               Score 47.4; DB 9;
Pred. No. 1.8;
0; Mismatches 91;
                                                                                                                                                                                          repeat: matches 7856. .7913
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                                                                                                                                                     Length 92357;
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                                                                                                               Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .364 of consensus"
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                                                                                                                                                          12709 GAAAGCACÁGÁCÁGAÁACCTACÁGATTAÁAAAÁGGCÁCÁAGÁTÁTCTTGATTCAAACAAÁ
                                                                             12769 CTATGTAAAAAAGTTACAATTTAAAAATGAATAATAACTTATTATATCAAGGAAAAGAAA
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                                                                                                                                                                                           736 GGAAGCGAAGATAGTATCCCCCGAGGCCTATAAAGTCACAGCAGATAGTCTACCTGCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              856 GTTAAAATTGATATTACTTTGTTGTATCGTGCATCTGGTCAAGAAATTCTATTGGGTGCA 915
                                                                                                                796 TTATTAGAAGTGGTTCCAATGACCATTGAAAGCATTCCTGAAGAAATCAGAAAAGATAAT 855
                                                                                                                                                                                                                                    102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (17-JUL-1999) Lita Annenberg Hazen Genome Sequencing Center, Cold Spring Harbor Laboratory, 1 Bungtown Road, Cold Spring Harbor, Ny 11724, USA
On Oct 11, 2000 this sequence version replaced gi:9954568.
NOTE: This is a 'working draft' sequence. It currently
* consists of 3 contigs. The true order of the pieces
* is not known and their order in this sequence record is
* arbitrary. Gaps between the contigs are represented as
* runs of N, but the exact sizes of the gaps are unknown.
* This record will be updated with the finished sequence
* as soon as it is available and the accession number will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 119082)
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Homo sapiens chromosome 20 clone P1-10263,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished
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TTTAATATTAAATTTTCAGTGTTGTATTAGTATTATTTTTAAACTATTCTATATTTTAGA
                                    GTTAAAATTGATATTACTTTGTTGTATCGTGCATCTGGTCAAGAAATTCTATTGGGTGCA 915
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22465 c 21882 s
                                                                                                                                                                                                                                                                                                                                                                                          /organism="Homo sapiens"
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                                                                                                                                                                                                                                                                                                                                                                    chromosome="20"
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Pred. No. 1.8;
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Tra10 Transposon removed.
On Nov 21, 2000 this sequence version replaced gi:5332384.
Clone P1-7739 contains a 3 kb overlap with Clone 48F5. The overlap at base 2940. From position 154930-155350 the subclones single stranded and had single chemistry.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (02-JUL-1999) Lita Annenberg Hazen Genome Sequencing Center, Cold Spring Harbor Laboratory, 1 Bungtown Road, Cold Spring Harbor, NY 11724, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               de la Bastide, M., Gnoj, L., Dedhia, N.N., Matero, A., Ning Huang, E., O'Shaugnessy, A., Preston, R., Rodriguez, M., Schutz, K., Shah, R., Shekher, M., Spiegel, L., Swaby, I., Vill, D. and McCombie, W.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (21-MAY-1999) Lita Annenberg Hazen Genome Sequencing Center, Cold Spring Harbor Laboratory, 1 Bungtown Road, Cold Spring Harbor, NY 11724, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
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AC007630
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Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
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         TTTAATÄTTAAATTTTCAGTGTTGTATTAGTATTTTTTAAACTÄTTCTÄTATTTTAGA 11824
                                           GTTAAAATTGATATTACTTTGTTGTTATCGTGCATCTGGTCAAGAAATTCTATTGGGTGCA
                                                                                                                        CTATGTAAAAAAGTTACAATTTAAAAATGAATAATAACTTATTATATCAAGGAAAAGAAA 1188
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/db_xref="taxon:9606"
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52.8%;
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Pred. No. 1.7;
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CE 1 (bases 1 to 84472)

RS Akhter,N., Ayele,K., Beckstrom-Sternberg,S.M., Benjamin,B., Brooks,S., Blakesley,R.W., Bouffard,G.G., Breen,K., Brinkley,C., Brooks,S., Dietrich,N.L., Granite,S., Guan,X., Gupta,J., Haghighi,P., Ho,S.-L., Idol,J.R., Karlins,E., Laric,P., Lee-Lin,S.-Q., Legaspi,R., Maduro,Q.L., Maduro,V.B., Masiello,C., Mastrian,S.D., McCloskey,J.C., McDowell,J., Pearson,R., Prasad,A., Shevchenko,Y., Stantripop,S., Thomas,J.W., Thomas,P.J., Touchman,J.W., Tsurgeon,C., Vogt,J.L., Walker,M.A., Wetherby,K.D., Wiggins,L., Laric, Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commerc
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Direct Submission
Submitted (22-SEP-2001) NIH Intramural Sequencing Center,
Submitted (22-SEP-2001) NIH Intramural Sequencing Center,
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Takifugu rubripes
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                                                                                                                                                                                                         NOTE: This is a 'working draft' sequence. It currently consists of 3 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACAAGATTTCCTG
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                                  10948
11048
37567
37667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequencing vector: plasmid; n/a; 100% of reads Chemistry: Dye-terminator Big Dye; 100% of reads Assembly program: Phrap; version 0.990319
Consensus quality: 83639 bases at least Q40
Consensus quality: 83810 bases at least Q30
Consensus quality: 83810 bases at least Q20
Consensus quality: 83910 bases at least Q20
Insert size: 84070; pulse-field-gel
Insert size: 84272; sum-of-contigs
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Quality coverage: 12.81x in Q20 bases; agarose-fp Quality coverage: 11.29x in Q20 bases; pulse-field-gel Quality coverage: 13.53x in Q20 bases; sum-of-contigs
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Web site: http://www.nisc.nih.gov
Contact: nisc_mouse@nhgri.nih.gov
----- Project Information
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1 10947: contig of 10947 bp in length
11047: gap of unknown length
18 37566: contig of 26519 bp in length
17 37666: gap of unknown length
18 4472: contig of 46806 bp in length
19 Location/Qualifiers
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241N7, WORKING DRAFT SEQUENCE, 3 unordered
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pst Local Similarity 44.6%;
tches 185; Conservative
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5246 TÁCTGTTGTTGCTGCTGCTACTGTTGTTGCTGCTGCTACTGTTGTTGCT 5300
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                                       396 GAAGAACTTCGAATCTGCTGCATCATTGCCAGTTTCGTTGACAACTGCTGGTGTT 450
                                                                                                                     336 TTTGTTTTACAAGAGTAACTTAACTCACTCAACTGCTGATGAAATTTCTGAAGGCCCTGT 395
                                                                                                                                                                                         276 TGCTTCCCAAACAGATCCTAAAAATGGTGCATTTGCTGAATATGCCAGGGTTTATCCACC 335
                                                                                                                                                                                                                                                                                                                                                           156
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                                                                            TGTTGCTGCTGTTGTTGCTGCTGCTGCTACTGTTGTTGCTGCTGCTGTTGTTGCTGC 5185
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clone_end:77
vector_side:left"
11048._.37566
/note="assembly_fragment
clone_end:SP6
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37667._.84472
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20937 c 21103 g 21384 t
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/organism="Takifugu rubripes"
/ob xref="taxon:31033"
/clone="241N7"
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Search completed: June 17, 2003, 09:22:00 Job time: 3079 secs

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Result
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•	urgdor	Gene #3817 used to		Human FLAMINGO 1 h		ORFX ORF	Human Flamingo cDN	Human Flamingo cDN	Tumour suppressor	Plasmodium falcipa	Drosophila melanog	ä	innocua	Listeria innocua c	Maize PCNA P120 ge	DNA encoding novel	Human cDNA clone (Drosophila melanog	Buchnera sp. genom	Streptococcus pneu	a.	frag		Polyglutamine trac		Genomic sequence o	Streptococcus poly	Strawberry fruit a	Streptococcus poly	Strawberry fruit a	AmEPV genome fragm			genome-deri		Probe #16702 used

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ALIGNMENTS

RESULT 1 ABN26679

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Human; open reading frame; ORFX; gene therapy; cancer; cirrhosis; hyperproliferative disorder; psoriasis; benign tumour; haemorrhage; degenerative disorder; osteoarthritis; neurodegenerative disorder; cardiovascular disease; diabetes mellitus; systemic lupus erythematosus; hypertension; hypothyroidism; cholesterol ester storage disease; immune deficiency; immune disorder; infectious disease; autoimmune disorder; rheumatoid arthritis; autoimmune thyroiditis; 30-MAY-2000; 2000US-206132P 29-AUG-2000; 2000US-228716P 06-DEC-2001. myasthenia gravis; Human ORFX polynucleotide sequence SEQ ID NO:21835 24-JUN-2002 (first entry) 29-MAY-2001; 2001WO-US10836. WO200192523-A2. Homo sapiens. (CURA-) CURAGEN CORP gene; ss.

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Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequences can be used in gene therapy. ORFX sequences can be used in the reatment of cancer, hyperproliferative disorders, cirrhosis of liver, psoriasis, benign tumours, keloid, degenerative disorders hamorrhage, osteoarthritis, neurodegenerative disorders, disorders related to organ transplantation, cardiovascular diseases, diabetes mellitus, systemic lupus erythematosus, hypertension, hypothyroidism, cholesterol ester storage disease, various immune deficiencies and disorders, infectious diseases, autoimmune thyroiditis, myasthenia gravis, graft-versus-host disease and autoimmune inflammatory eye disease. ORFX proteins are also disease and autoimmune inflammatory eye disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            useful for treating burns, incisions, ulcers, for treating osteoporosis, bone degenerative disorders, or periodontal disease, and for gut protection or regeneration and treatment of lung or liver fibrosis, reperfusion injury in various tissues and conditions resulting from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       proteins given in ABP00010 to ABP11500. ORFX proteins are useful for treating or preventing a pathology associated with an ORFX-associated disorder in humans, and in the manufacture of a medicament for treating syndrome associated with ORFX-associated disorder. ORFX polynucleotide
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Matches 163
                                                                                                                                                                                                         the S.aureus DNA sequences allows putative functions to be assigned so that protein-encoding or regulatory regions of commercial, therapeutic or industrial importance can be obtained. Specifically, sequences which are likely to encode antigens have been identified and these polypeptides can be used in a vaccine composition against S.aureus infection. The polypeptides can also be used in a kit for the immunodetection of S.aureus in a sample. S.aureus is implicated in numerous human diseases, including cellulitis, eyelid infections, food poisoning, osteomyelitis, skin and surgical wound infections, scalded skin syndrome, toxic shock syndrome, etc. Organisms transformed with the DNA sequences can be used for the sequences can be used for the sequences.
                                                                                                                    Sequence
                                                                                                                                                                for recombinant production of the polypeptides. The new DNA sequences (and their fragments) are useful as primers or probes for isolating homologues of any of the S.aureus DNA sequences contained on the
                                                                                                                                                                                                                                                                                                                                                                     memory (RAM),
                                                                                                                                                                                                                                                                                                                                                                             This sequence represents one of 5191 Staphylococcus aureus DNA sequences of the invention. The DNA sequences are recorded on a computer readable medium, preferably selected from a floppy or hard disk, random access
                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 1;
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The present invention describes proteins and their tragments (2)

C by chromosome 2 of the human malarial parasite, Plasmodium falciparum.

C Also described are: (1) nucleotide sequences (II) encoding (I); and (2)

C vaccines against P. falciparum infection comprising (I) or (II).

CC (I) and (II) are useful for the development of vaccines against

CC P. falciparum infection. (I) and polyclonal antisera or a monoclonal

CC antibody raised to immunogens comprising the sequences of (I), are

CC useful in the detection of infection with P. falciparum. Furthermore,

CC (I) (especially when they are rifins or secreted or membrane proteins)

CC can aid the identification of drugs to treat or prevent P. falciparum

CC infection, or they can be used to identify drug resistance in

CC P. falciparum. Sequencing of the Plasmodium chromosome 2 and the

CC subsequent identification of proteins encoded by it will help to expand
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(GARD/)
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                                                                                                                                                                                                                                                                                                                                                                                                                     TAAATGATGATAATAATAATAATCATATAAATGATGATAATAATAATAATAACCATA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCACAGCAGATAGTCTACCTGCCACATTATTAGAAGTGGTTCCAATGACCATTGAAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCATGATAATATAAACAATAATGATGTAAATGATGATAATAT---AAATAATAATCCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCTGCAACATGTTATTGACGCTGTGGGAAGCGAAGATAGTATCCCCGAGGCCTATAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGATGAATGTGTTAAGACGCACGTGAAAGTGAATGAGGAGATCCAACAAAGAAAAACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGATGTCTTTGACTATCATGATGCAGGCGTTATTGAGCAGATCAAATCGAAGTATCCAA
                                                                                                                                                                                                                                                                                                                                                                                               CCACAGTTAAATTCGTTAAGTTTATAAATCCACACCTTAACAACGGTGATATCCATCATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTCCTGAAGAAATCAGAAAAGATAATGTTAAAATTGATATTACTTTGTTGTATCGTGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TAAATGATGATAATAAAGCAATAATCATATAGATGATGATAATATAAACAATAATCATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
         2000US-0207456.
2000US-0608408.
2000US-0632366.
                                        2000US-0180312.
                                                             2001WO-US00662
                                                                                                                                                                           cell single exon nucleic
                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BP; .1699 A; 327 C; 468 G; 1007 T; 0 other;
                                                                                                                                              88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.7%;
                                                                                                                                                                                                                                          439
                                                                                                                                                        exon
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                                                                                                                                                                                                                                          ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 40.8;
Pred. No. 1
                                                                                                                                                        probe;
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                                                                                                                                                       gene
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                                                                                                                                                                             probe
                                                                                                                                                        expression; breast;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
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Human; foetal liver; gene

expression; single exon nucleic acid probe

exon

acid

#16101. nucleic

Human 01-FEB-2002

foetal

liver single (first

entry)

ABA67796 standard; DNA; 439

ВP

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derived from mRNA of human breast, and then measuring the label
bound to each probe of the microarray. The probes are useful for
cerifying the expression of regions of genomic DNA predicted to
encode proteins. They are useful for gene discovery, and for
determining predisposition and/or prognosing breast disease. Gene
cexpression analysis is useful for assessing the toxicity of chemical
agents on cells. The microarray of this invention presents a far greater
diversity of probes for measuring gene expression, with far less bias
than expressed sequence tag microarrays. The method is suitable for
rapid production of functional information from genomic sequence. The
present sequence is a single exon nucleic acid probe of the invention.
Note: The sequence data for this pattent did not form part of the
printed specification, but was obtained in electronic format directly
from WIPO at ftp.wipo.int/pub/published_pct_sequences.
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Best Local S
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from human breast and BT 474 cells. The method involves contacting
the probes with a collection of detectably labelled nucleic acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 439 BP; 141 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New spatially-addressable set of single exon nucleic acid pruseful for measuring gene expression in sample derived from breast, comprises number of single exon nucleic acid probes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27-SEP-2000; 2000US-0236359.
04-OCT-2000; 2000GB-0024263.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (MOLE-) MOLECULAR DYNAMICS INC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                      385 TGATGGTGGTGATGGTGATGCTGCTGATGATGGTGGGGGATAATGATGGTGATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                     TGCTTCCCAAACAGATCCTAAAAATGGTG
                                                                                                                                                                TGGACCAAATGCTAGTACTGACTTGAAGGTTGGAGATACCGGTTTCGGTTTTGTTCACGG
                                                                                                                                                                                                                         TGCTGATGGTGATGGTGGTGATTACGATGGTGATGCTGCTGCTGCTGGTGGTGA
                                                                                                                                                                                                                                                                               TAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACT
                                                                                                                                                                                                                                                                                                                                       TGCCGATGGTGATGGTGATGATGATGGTGATGCTGATGGTGTTGATGGCGATGC
                                                                                                                                                                                                                                                                                                                                                                           AGCCTTGGTGAAGGTTGAGGCTGTTGCTGGTAACCCAACTGATTGGAAGCATATTTGCTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAAGGTGACAAAGCTGTTGTTAAAACAGATGTCTCAGTTCCAGAATTAAAGGAGGGTAC
TGATGATGATGGTAATGATGATGATGGTG
                                                                                                           TCCTGCTGATGGTTTTGATGGTTATGATGATGGTGATGCTGACGGTGATGATGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hanzel DK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chen W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     169 C; 41 G; 88 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
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Pred. No. 0
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Homo

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RESULT 6
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ID ABA348
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                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                       measuring and displaying gene expression in samples derived from huma fetal liver. The present sequence is a single exon nucleic acid probe of the invention.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly
                                                                                                                                                                                                                                                                                                                                                                                                                         The
Probe #13320 for gene expression analysis in human heart cell sample.
                                     ABA34854;
                                                                                                                                                                                                                                                                                                                             Sequence 439
                                                                                                                                                                                                                                                                                                                                                                                                   measuring human gene expression in a sample derived fro
liver. The single exon nucleic acid probes may be used
                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           analyzing
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Penn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-FEB-2000;
26-MAY-2000;
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                                                       ABA34854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        03-AUG-2000;
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                   23-JAN-2002
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                                                                                                                                                                                                                                                                                                   Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sapiens
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                                                                                                                                                                                                                                                                                                                                                                                                                                                           genome-derived single exon nucleic acid probes zing gene expression in human fetal liver -
                                                                                                                                                                                                                                  96
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                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULAR DYNAMICS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ
                                                       standard;
                                                                                                                                                          TGGACCAAATGCTAGTACTGACTTGAAGGTTGGAGATACCGGTTTCGGTTTTGTTCACGG
                                                                                                                                                                                             TAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACT
                                                                                                                                                                                                                TGCCGATGGTGATGGTGATGATGATGGTGATGCTGATGGTGTTGATGGCGATGC
                                                                                                                                                                                                                                 AGCCTTGGTGAAGGTTGAGGCTGTTGCTGGTAACCCAACTGATTGGAAGCATATTGCTTA
                                                                                                                                                                                                                                                     TGATGGTGGTGATGCTGCTGCTGATGATGATGGTGGGGATAATGATGGTGATGC
                                                                                                                                                                                                                                                                      TGATGATGATGGTAATGATGATGGTG
                                                                                                                      TGCTTCCCAAACAGATCCTAAAAATGGTG
                                                                                                                                        TCCTGCTGATGGTTTTGATGGTTATGATGATGGTGATGCTGCTGACGGTGATGATGGTGA
                                                                                                                                                                            TGCTGATGGTGATGATGGTGATTACGATGGTGATGCTGCTGCTGCTGCTGGTGGTGA
                                                                                                                                                                                                                                                                                                                                             at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hanzel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; 2000US-0180312.
; 2000US-0207456.
; 2000US-0608408.
; 2000US-0632368.
; 2000US-0234687.
; 2000US-0236359.
; 2000US-0236359.
                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                            BP; 141 A; 169 C; 41 G; 88 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                          IJ
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                  (first entry)
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                                                                                                                                                                                                                                                                                                                                                                                                                                          16101;
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Pred. No. 0.66;
0; Mismatches 143;
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                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence listing;
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                                                                                                                                                                                                                                                                                                          Length 439;
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                                                                                                                                                                                                                                                                                                                                                                                                              from human
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Matches 126;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             measuring human gene expression in a sample derived from human heart. The present sequence is one such probe. The probes may be used for predicting, measuring and displaying gene expression in samples derived from the human heart via microarrays. By measuring gene expression, the probes are useful for predicting, diagnosing, grading, staging, monitoring and prognosing diseases of the human heart and vascular systems. Cardiovascular disease, hypertension, cardiac arrhythmias and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Single exon nucleic acid probes
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           congenital heart disease; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human; gene expression; heart; microarray; vascular system; probe; cardiovascular disease; hypertension; cardiac arrhythmia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               congenital heart disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The present invention relates to single exon nucleic acid probes for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21-SEP-2000;
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                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ
                                                                                                                                                                                                                                       TGCCGATGGTGATGGTGATGATGATGGTGATGCTGCTGATGGTGTTGATGGCGATGC
                                                                                                                                                                                                                                                                             AGCCTTGGTGAAGGTTGAGGCTGTTGCTGGTAACCCAACTGATTGGAAGCATATTGCTTA 155
                                                                                                                                                                                                                                                                                                                                                       TGAAGGTGACAAAGCTGTTGTTAAAACAGATGTCTCAGTTCCAGAATTAAAGGAGGGTAC
TGATGATGATGGTAATGATGATGGTG
                                     TGCTTCCCAAACAGATCCTAAAAATGGTG
                                                                              TCCTGCTGATGGTTTTGATGGTTATGATGATGGTGATGCTGCTGACGGTGATGATGGTGA
                                                                                                                 TGGACCAAATGCTAGTACTGACTTGAAGGTTGGAGATACCGGTTTCGGTTTTGTTCACGG
                                                                                                                                                         TGCTGATGGTGATGATGGTGGTGATTACGATGGTGATGCTGCTGCTGCTGGTGA
                                                                                                                                                                                              TAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACT
                                                                                                                                                                                                                                                                                                                    TGATGGTGGTGATGGTGATGCTGCTGCTGATGATGGTGGGGGATAATGATGGTGATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hanzel
                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ID No 13320;
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2000US-0236359
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141 A; 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DYNAMICS
                                                                                                                                                                                                                                                                                                                                                                                                               3.6%;
46.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             530pp;
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                                                                                                                                                                                                                                                                                                                                                                                               ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C; 41 G; 88 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                   Score 40.2;
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for analyzing
                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DR
117
                                                                                                                                                                                                                                                                                                                                                                                                                   0.66;
                                       304
                                                                                                                                                                                                                                                                                                                                                                                                                                      DB
                                                                                                                                                                                                                                                                                                                                                                                                 143;
                                                                                                                                                                                                                                                                                                                                                                                                                                      22;
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                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
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                                                                                                                                                                                                                                                                                                                                                                                                                                        439;
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                                                                              146
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AAK16207/c
ID AAK162
XX
AC AAK162
XX
DT 05-NOV
XX
Human
DE Human
XX
KW Human;
KW microa
KW epilep
XX
W epilep
XX
W w02001
XX
PD 09-AUC
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Best Local S
Matches 126
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26-MAY-2000; 2000US-0608408.

30-JUN-2000; 2000US-0632366.

03-AUG-2000; 2000US-0632366.

21-SEP-2000; 2000US-0234687.

27-SEP-2000; 2000US-0236559.

04-OCT-2000; 2000GB-0024263.
                                                                                                                                                                                                                                                                                                                                                           probes which are derived from genomic sequences expressed in the human brain. They can be used to measure gene expression in brain cell samples which may enable the diagnosis and improved treatment of nervous system diseases such as Alzheimer's disease, multiple sclerosis, schizophrenia, epilepsy and cancers. The present sequence is one of the probes of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30-JAN-2001; 2001WO-US00667.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       microarray; Alzheimes
epilepsy; cancer; ss
                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Example 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2001-483446/52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200157275-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      epilepsy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    05-NOV-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAK16207 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (MOLE-) MOLECULAR DYNAMICS INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SG,
                                                    205
                                                                             216
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 145
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                                                                                                                                                                               AGCCTTGGTGAAGGTTGAGGCTGTTGCTGGTAACCCAACTGATTGGAAGCATATTGCTTA
                                                                                                                                 TAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACT
                                                                                                                                                                                                                TGATGGTGGTGATGCTGCTGCTGATGATGATGGTGGGGATAATGATGGTGATGC
                                                                                                                                                              TGCCGATGGTGATGGTGATGATGATGGTGATGCTGATGGTGTTGATGGCGATGC
                                                                                                                                                                                                                                         TGAAGGTGACAAAGCTGTTGTTAAAACAGATGTCTCAGTTCCAGAATTAAAGGAGGGTAC
TGATGATGATGGTAATGATGATGGTG
                          TGCTTCCCAAACAGATCCTAAAAATGGTG
                                                    TCCTGCTGATGGTTTTGATGGTTATGATGGTGATGCTGCTGACGGTGATGGTGA
                                                                             TGGACCAAATGCTAGTACTGACTTGAAGGTTGGAGATACCGGTTTCGGTTTTGTTCACGG
                                                                                                        TGCTGATGGTGATGGTGGTGATTACGATGGTGATGCTGCTGCTGCTGGTGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hanzel DK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO: 16198; 650pp + Sequence Listing;
                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                              invention provides a number of single exon nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nucleic acid probes for analyzing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  n expressed exon; gene expression analysis; probe;
Alzheimer's disease; multiple sclerosis; schizophrenia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         expressed
                                                                                                                                                                                                                                                                                                                       BP; 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                3.6%;
46.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA;
                                                                                                                                                                                                                                                                                                                       A; 169 C;
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                                                                                                                                                                                                                                                                               Score 40.2; DB Pred. No. 0.66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         exon
                                                                                                                                                                                                                                                                                                                       41 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rank
                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        probe SEQ ID
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                                                                                                                                                                                                                                                                                                                       88 T; 0 other;
                          304
                                                                                                                                                                                                                                                                                           DB 22; Length 439;
                                                                                                                                                                                                                                                                    143;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene expression in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NO:
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samples,
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Matches 126
                                                                                                                                                                                                                                                                                                                                             probes which are derived from genomic sequences expressed in the human bone marrow. They can be used to measure gene expression in bone marrow samples, which may enable the improved diagnosis and treatment of cancer such as lymphoma, leukaemia and myeloma. The present sequence is one of
                                                                                                                                                                                                                                                                                                                                                                                      The present invention provides a number of single exon nucleic probes which are derived from genomic sequences expressed in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human genome-derived single exon nucleic acid probes useful analyzing gene expression in human bone marrow -  \\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21-SEP-2000;
27-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             04-FEB-2000;
26-MAY-2000;
                                                                                                                                                                                                                                                                                                         Sequence 439 BP; 141 A; 169 C; 41 G; 88 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                              Example 4; SEQ ID NO: 16510; 658pp + Sequence Listing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2001-488900/53.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    03-AUG-2000;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           microarray; cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              06-NOV-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAK41953 standard;
                                                                                                                                                                                                                                                                                                                                    the probes of the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200157276-A2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (MOLE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SG,
276 TGCTTCCCAAACAGATCCTAAAAATGGTG
                                                                                                                      156 TAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACT
                                                                                                                                                                                                    385
                                                                                                                                                                                                                                                       126;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bone marrow
                                                                                                                                                                         96 AGCCTTGGTGAAGGTTGAGGCTGTTGCTGGTAACCCAACTGATTGGAAGCATATTGCTTA
                                                                                                                                                                                                                             36 TGAAGGTGACAAAGCTGTTGTTAAAACAGATGTCTCAGTTCCAGAATTAAAGGAGGGTAC
                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULAR DYNAMICS
                                        TCCTGCTGATGGTTTTGATGGTTATGATGGTGATGCTGCTGACGGTGATGATGGTGA
                                                                 TGGACCAAATGCTAGTACTGACTTGAAGGTTGGAGATACCGGTTTTCGGTTTTGTTCACGG
                                                                                             TGCTGATGGTGATGGTGGTGATTACGATGGTGATGCTGCTGCTGCTGCTGGTGA
                                                                                                                                                TGCCGATGGTGATGGTGATGATGATGGTGATGCTGATGGTGTTGATGGCGATGC
                                                                                                                                                                                                  TGATGGTGGTGATGCTGCTGCTGATGATGATGGTGGGGGATAATGATGGTGATGC
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                                                                                                                                                                                                                                                        Conservative
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2000US-0207456.
2000US-0608408.
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2000US-0236359.
2000GB-0024263.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  expressed single exon probe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           leukaemia;
                                                                                                                                                                                                                                                                  3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chen W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INC
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                                                                                                                                                                                                                                                                     Pred. No.
                                                                                                                                                                                                                                                                               Score 40.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           lymphoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rank
                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DR;
               304
                                                                                                                                                                                                                                                                     . 66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            myeloma;
                                                                                                                                                                                                                                                                                  DB 22;
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                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                        Indels
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                                                                                                                                                                                                                                                                                                                                                 treatment of cancers sequence is one of
                                                                                                                                                                                                                                                                                                                                                                                                                               English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16510
                                                                                                                                                                                                                                                                                   439;
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275 206 215 266 155

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TGATGATGATGATGATGATGATGTG 117

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RESULT 9
AA122718/c
ID AA1227
XX AA1227
AC AA1227
XX Probe
XX Probe
XX Probe;
KW Probe;
KW Cervic
XX Homo s
XX Homo s
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26-MAY-2000; 2000US-0207456.
30-JUN-2000; 2000US-0608408.
03-AUG-2000; 2000US-0632366.
21-SBP-2000; 2000US-0234687.
27-SBP-2000; 2000US-0234589.
04-OCT-2000; 2000GB-0024263.
                                                                                                                                                                                                                                                                                                                                                                                                                  The present invention relates to human single exon nucleic acid probes (SENP). The present sequence is one such probe. The SENPs are derived from human HeLa cells. The SENPs can be used to produce a single exon microarray, which can be used for measuring human gene expression in a sample derived from human cervical epithelial cells. By measuring gene
                                                                                                                                                                                                                                                                                                                                                                                        expression, the probes are therefore useful in grading and/or staging of diseases of the cervix, notably cervical cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Penn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30-JAN-2001; 2001WO-US00670
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                                                                                                                                                                                                                                                                                                     Sequence 439 BP; 141 A; 169 C; 41 G; 88 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 25; SEQ ID No 12651; 487pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Probe #12651 for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12-OCT-2001
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                                                                                                                                                                                                                                                                                                                                   at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                        Note:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human genome-derived single exon nucleic acid probes useful
analyzing gene expression in human cervical epithelial cella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-488901/53.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cervical cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Probe; human; microarray; gene expression; cervical epithelial cell;
                                                                                                                                                                                                                                                                                                                                                        specification,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (MOLE-) MOLECULAR DYNAMICS INC
                                                                                                                                                                                                                                                                                                                                                 diseases of the cervix, notably cervical cancer.
te: The sequence data for this patent did not form part of the printed
ecification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SG,
                                                                                                     325
                                                                                                                                                                    385
   216
                                  265
                                                                  156
                                                                                                                                                                                                                                     126;
                                                                                                                                   96 AGCCTTGGTGAAGGTTGAGGCTGTTGCTGGTAACCCAACTGATTGGAAGCATATTGCTTA
                                                                                                                                                                                                   36 TGAAGGTGACAAAGCTGTTGTTAAAACAGATGTCTCAGTTCCAGAATTAAAGGAGGGTAC
                                                                                                                                                                                                                                                      Similarity
 TGGACCAAATGCTAGTACTGACTTGAAGGTTGGAGATACCGGTTTTCGGTTTTGTTCACGG
                                                                    TAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACT
                                                                                                                                                                    TGATGGTGGTGATGCTGCTGCTGATGATGATGGTGGGGGATAATGATGGTGATGC
                                  TGCTGATGGTGATGGTGATTACGATGGTGATGCTGCTGCTGCTGCTGGTGATGA
                                                                                                   TGCCGATGGTGATGGTGATGATGATGGTGATGCTGATGGTGTTGATGGCGATGC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                    3.6%;
46.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chen W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     expression analysis in human cervical cell sample.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BP.
                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                   Score 40.2;
Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rank DR;
                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                      . 66;
                                                                                                                                                                                                                                                                    DB 22;
                                                                                                                                                                                                                                     143;
                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e -
                                                                                                                                                                                                                                   0,
   275
                                                                  215
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RESULT 10
AAI48016/c
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                                                                                                                                                                                                                  BXSXXXX
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                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                    Matches
                                                                                                                                                                                                                                    The present invention relates to single exon nucleic acid probes (SENP). The present sequence is one such probe. The probes are useful for producing a microarray for predicting, measuring and displaying gene expression in samples derived from human placenta. The probes are useful for antenatal diagnosis of human genetic disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAI48016
                                                                                                                                                                                                                 Sequence 439 BP; 141 A; 169 C; 41 G; 88 T; 0 other;
                                                                                                                                                                                                                                                                                                                Claim
                                                                                                                                                                                                                                                                                                                                                  Human
                                                                                                                                                                                                                                                                                                                                                                                                   Penn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       04-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09-AUG-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               genetic disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Probe #16702 used to measure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAI48016;
                                                                                                                                                                                                                                                                                                                                      analyzing
                                                                                                                                                                                                                                                                                                                                                                           WPI; 2001-488897/53.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-JUN-2000;
03-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-JAN-2001; 2001WO-US00663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200157272-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Probe; microarray;
                                                                                                                                                                                                                                                                                                                                                                                                                           (MOLE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                27-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                   SG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  205
                                                                                                                    385
                                                                                                                                                                 126;
                                                                                             96
                                                                                                                                            36
                                                                                                                                                                                                                                                                                                                                                  genome-derived single exon nucleic acid probes
                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULAR DYNAMICS INC.
                                                                                     AGCCTTGGTGAAGGTTGAGGCTGTTGCTGATACCCAACTGATTGGAAGCATATTGCTTA 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         standard; DNA;
TGGACCAAATGCTAGTACTGAAGGTTGGAGATACCGGTTTTCGGTTTTGTTCACGG
                                              TAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACT
                                                                     TGCCCATGGTGATGGTGATGATGGTGATGCTGCTGATGGTGTTGATGGCGATGC
                                                                                                                                         TGAAGGTGACAAAGCTGTTGTTAAAACAGATGTCTCAGTTCCAGAATTAAAGGAGGGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGATGATGATGATGATGATGATGGTG 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCTTCCCAAACAGATCCTAAAAATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCCTGCTGATGGTTTTGATGGTTATGATGGTGATGCTGCTGACGGTGATGGTGA 146
                     TGCTGATGGTGATGGTGGTGATTACGATGGTGATGCTGCTGCTGCTGGTGGTGA
                                                                                                                    TGATGGTGGTGATGCTGCTGCTGATGATGATGGTGGGGGATAATGATGGTGATGC
                                                                                                                                                                                                                                                                                                                SEQ
                                                                                                                                                                                                                                                                                                                                        gene expression
                                                                                                                                                                                                                                                                                                                                                                                                   Hanzel
                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-0207456.
2000US-0608408.
2000US-0632366.
2000US-0234687.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000US-0236359
2000GB-0024263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000US-0180312
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                                                                                                                                                                                                                                                                                                              ID No 16702; 654pp;
                                                                                                                                                                                                                                                                                                                                                                                                  Ŗ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         human;
                                                                                                                                                                              3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                  Chen W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         439
                                                                                                                                                                                                                                                                                                                                     in human placenta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         placenta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ВÞ
                                                                                                                                                                 0
                                                                                                                                                                              Score 40.2;
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                   Rank
                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                              English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 expression in human placenta sample
                                                                                                                                                                                                                                                                                                                                                                                                   DR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        antenatal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          304
                                                                                                                                                                               DB 22;
                                                                                                                                                                  143;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        diagnosis;
                                                                                                                                                                  Indels
                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                   useful
                                                                                                                                                                 0;
                                                                                                                                                                 Gaps
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275
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RESULT 11
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                                                                              Matches
                                                                                        Query Match
Best Local (
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03-AUG-2000;
21-SEP-2000;
27-SEP-2000;
                                                                                                                                                                                                                measuring human gene expression in a human breast sample, where the prohybridises at high stringency to a nucleic acid expressed in the human breast. The probes are useful for predicting, diagnosing, grading, staging, monitoring and prognosing diseases of the human breast, particularly those diseases with polygenic aetiology. The diseases include: breast cancer, disorders of development, inflammatory diseases
                                                                                                                                                 Note: The sequence data for this patent did not form specification, but was obtained in electronic format at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     04-FEB-2000;
26-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                           Novel single exon nucleic acid in a human breast -
                                                                                                                                                                                           non-carcinoma tumours
                                                                                                                                                                                                                                                                                                                                   Claim 25; SEQ ID No 8374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200157270-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               inflammatory disease; proliferative breast disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Probe; human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Probe #8374 used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                09-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAI08383
                                                                                                                                                                                                     include: breast cancer, disorders of development, inflammatory di
                           385
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                                                   36
  96
                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULAR DYNAMICS INC
                                                                                                                               439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard;
  AGCCTTGGTGAAGGTTGAGGCTGTTGCTGGTAACCCAACTGATTGGAAGCATATTGCTTA
                          TGATGGTGGTGATGCTGCTGCTGATGATGGTGGGGGATAATGATGGTGATGC
                                               TGAAGGTGACAAAGCTGTTGTTAAAACAGATGTCTCAGTTCCAGAATTAAAGGAGGGTAC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCTTCCCAAACAGATCCTAAAAATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCTGCTGATGGTTTTGATGGTTATGATGGTGATGCTGCTGACGGTGATGATGGTGA
                                                                                                                                                                                                                                                                                             sequence is one such
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-0632366.
2000US-0234687.
2000US-0236359.
2000US-0024263.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0180312.
2000US-0207456.
2000US-0608408.
                                                                            Conservative
                                                                                                                                                                                                                                                                                                          invention relates to novel single exon nucleic acid probes.
                                                                                                                              B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2001WO-US00661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            breast disease; breast cancer; development disorder; ss;
                                                                                                                                                                                                                                                                                                                                                                                                                        DK,
                                                                                                                              141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      to measure gene expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entry)
                                                                                        3.6%;
46.8%;
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                                                                                                                                                                                                                                                                                                                                                                                                                           Chen
                                                                                                                            169 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 439
                                                                                                                                                                                                                                                                                                                                  322pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                          Σ
                                                                          Score 40.2; Di
Pred. No. 0.66
0; Mismatches
                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ВР
                                                                                                                                                                                                                                                                                                                                                                       probe used
                                                                                                                              41 G;
                                                                                                                                                                                                                                                                                                                                                                                                                           Rank DR;
                                                                                                                                                                                                                                                                                             probe. The probes are useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              88 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              117
                                                                                        . 66
                                                                                                    DB 22;
                                                                                                                                                                                                                                                                                                                                                                      to measuring
                                                                           143;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    in human breast sample
                                                                           Indels
                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                non-carcinoma tumour
                                                                                                                                                                 part of the printed directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                    439;
                                                                                                                                                                                                                                                                                 where the probe
                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                         expression
                                                                                                                                                                                                                    diseases
                                                                           Gaps
                                                                                                                                                                                                        and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               146
                         326
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RESULT 12
ABS15980/c
ID ABS159
probes. Also included are a microarray comprising the novel set of probes; the novel set of probes which hybridise at high stringency to a nucleic acid expressed in the human lung; measuring gene expression in a sample derived from human lung, comprising (a) contacting the array with a collection of detectably labeled nucleic acids derived from human lung
                                                                                                                          The invention relates to a spatially-addressable set of single exon nucleic acid probes for measuring gene expression in a sample derived from human lung comprising single exon nucleic acid probes having one 12614 nucleic acid sequences mentioned in the specification, or their complements or the 12387 open reading frames derived from the 12614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hermansky-Pudlak syndrome; sarcoidosis; pulmonary haemosiderosis; pulmonary histlocytosis; lymphangioleiomyomtosis; Karagener syndrome; pulmonary alveolar proteinosis; fibrocystic pulmonary dysplasia; primary ciliary dyskinesis; pulmonary hypertension; hyaline membrane disease; open reading frame; ORF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    chronic obstructive familial idiopathic tuberous sclerosis;
                                                                                                                                                                                                                                                                                                                             Spatially-addressable set of single exon nucleic measure gene expression in human lung samples -
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Penn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-FEB-2000;
26-MAY-2000;
                                                                                                                                                                                                                                                                              Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ABS15980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30-JUN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-NOV-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (MOLE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                        SG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          156 TAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              325 TGCCGATGGTGATGGTGATGATGATGGTGATGCTGATGGTGTTGATGGCGATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genome-derived single exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ds; single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULAR DYNAMICS INC
                                                                                                                                                                                                                                                                              SEQ ID No 15971; 634pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGATGATGATGGTAATGATGATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCTTCCCAAACAGATCCTAAAAATGGTG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCTGCTGATGGTTTTGATGGTTATGATGATGGTGATGCTGACGGTGATGATGGTGA
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2000US-0632366.
2000US-234687P.
2000US-236359P.
2000US-236359P.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                     DK,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    xon probe; asthma; lung cancer; COPD; ILD
pulmonary disease; interstitial lung dis
pulmonary fibrosis; neurofibromatosis;
gaucher's disease; Niemann-Pick disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chen W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     439
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                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rank
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               117
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                                                                                                                                                                                                                                                                                                                                                          acid
                                                                                                                                                                                                                                                                                                                                                     probes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        disease;
                                                                                                                                                                                                                                                                                                                                                            6
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RESULT 13
ABL56207
ID ABL56
XX
AC ABL56
XX
O1-JU
XX
AMEPV
XX
AMEPV
XX
AMEPV
XX
AMEPV
XX
AMERV
XX
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the array; identifying exons in a eukaryotic genome, comprising (a) algorithmically predicting at least one exon from genomic sequences of the eukaryote; and (b) detecting specific hybridisation of detectably confirm a final probe and confirm the above mentioned microarray; assigning exons to a single gene, comprising (a) identifying exons from genomic sequence by the method in the above and (b) measuring the expression of each of the exons in several ctissues and/or cell types using hybridisation to a single exon comprising of the exons in the tissues and/or cell types indicates that the exons should be assigned to a single gene, a common pattern of the exons should be assigned to a single gene; a peptide comprising one of 1001 sequences, mentioned in the specification, or encoded by the expression analysis, and for identifying exons in a gene, particularly using human lung derived mRNA and for the study of lung diseases (CC (COPD), interstitial lung disease (IID), familial idiopathic pulmonary fibrosis, neurofibromatosis, tuberous sclerosis, Gaucher's disease, Niemann-Pick disease, Hermansky-Pudlak syndrome, sarcoidosis, pulmonary these open reading frames (NRF). The probes are fibrocystic pulmonary dysplasia, primary ciliary dyskinesis, pulmonary hypertension con and hyaline membrane disease. The present sequence is a single exon to conclude the membrane disease. The invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                          AmEPV; gene therapy; viral vector; genetic deficiency disorder; gene;
                                                                                                                                                                        01-JUL-2002
                                                                                                                                                                                                                   ABL56207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          probe open reading frame of the invention.

Note: The sequence data for this patent did not form part
of the printed specification, but was obtained in electronic
format directly from WIPO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA, and (b) measuring the label detectably bound to each probe of
                      Amsacta moorei entomopoxvirus
                                                                                                                             AmEPV first
                                                                                                                                                                                                                                                           ABL56207 standard; DNA; 1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ftp.wipo.int/pub/published_pct_sequences.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               439
                                                                                                                                                                                                                                                                                                                                                                     TGATGATGATGGTAATGATGATGGTG 117
                                                                                                                                                                                                                                                                                                                                                                                                              TGCTTCCCAAACAGATCCTAAAAATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGACCAAATGCTAGTACTGACTTGAAGGTTGGAGATACCGGTTTCGGTTTTGTTCACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCTGATGGTGATGGTGATTACGATGGTGATGCTGCTGCTGCTGCTGGTGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCCGATGGTGATGGTGATGATGATGGTGATGCTGCTGATGGTGTTGATGGCGATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCCTTGGTGAAGGTTGAGGCTGTTGCTGGTAACCCAACTGATTGGAAGCATATTGCTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGATGGTGGTGATGGTGATGCTGCTGCTGATGATGGTGGGGGATAATGATGGTGATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGAAGGTGACAAAGCTGTTGTTAAAACAGATGTCTCAGTTCCAGAATTAAAGGAGGGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCTGCTGATGGTTTTGATGGTTATGATGGTGATGCTGCTGACGGTGATGATGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TAAGATTGGTCCAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACT
                                                                                                                           RNA polymerase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BP; 141 A; 169 C; 41 G; 88 T; 0 other;
                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.6%;
                                                                                                                         (AMV051) encoding sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 40.2;
Pred. No. 0.
                                                                                                                                                                                                                                                           ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches 143;
                                                            chromosome mapping; gene mapping; RNA polymerase; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                304
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Best Local Similarity
Matches 102; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   biologically useful proteins in gene therapy protocols, and for delivering large DNA segments for engineering of vertebrate cells. Polynucleotides of the invention have applications in techniques such as their use as insertion sites for foreign genes of interest, hybridisation probes, for chromosome and gene mapping, in PCR technologies, and in the production of sense or antisense nucleic acids. Vectors of the invention provide for stable integration and expression of heterologous DNA in host cells, and are adapted for accepting large heterologous polynucleotide inserts which can be delivered in an infected or transformed cell and expressed in a stable fraction. The current sequence represents an amsacta moorei entomopoxvirus (AmEPV) first RNA polymerase (AMV051)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The invention relates to a recombinant entomopox virus (EPV) vector, a comprising a polynucleotide encoding a protein operably linked with a heterologous promoter sequence. The invention also concerns methods for providing gene therapy for genetic deficiency disorders. Vectors of the invention are useful for delivering a polynucleotide encoding a protein to a vertebrate cell preferably a mammalian cell, such as a human cell. The vector is introduced into the vertebrate cell by infection in a viral particle, or by transfection, transduction, or injection either in vitro or in vivo. The vector is useful for the delivery and expression of the injection of the vector is useful for the delivery and expression of the compression of the delivery and expression of the vector is useful for the delivery and expression of the vector is useful for the delivery and expression of the vector is useful for the delivery and expression of the vector is useful for the delivery and expression of the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector that the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the vector is useful for the ve
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1050 BP; 487 A; 85 C; 111 G; 367 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 74; Page 245-247; 326pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10-AUG-2000;
14-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                encoding sequence.
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      1069
                                                                   679
                                                                                                                                                                                           619
      AAAGAAGGTAAAAACAAAAATGTTAA 1094
                                                                                                                                 ATGAATATTAAAGTTTTCAGCAACGGCTTAGATGATGTCCCAGCTCTCACTGAAGGTATA 1068
                                                                                                                                                                                                                                                     GCCACAGTTAAATTCGTTAAGTTTATAAATCCACACCTTAACAACGGTGATATCCATCAT 1008
                                                                   AATATAAAAAATTCTTTATTGATATATTTAATAAAATAGCAGATATATTTGAAAATATT
                                                                                                                                                                                           GAAAAAGATATTTATACTATAGATATAAGATATAATCATTATGATGATATTCCTAAAGAA
                                                                                                                                                                                                                                                                                                                      TATTATGAAAAAATTTATTATATAAAAAAACCATTTTCTATGTATAGCAAATATCATGAA
                                                                                                                                                                                                                                                                                                                                                                             TCTGGTCAAGAATTCTATTGGGTGCAACAAGATTTCCTGCTAGTCCAGAATATCATGAA
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                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
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2000US-0662254.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product= "first RNA polymerase (AMV051)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bawden
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3.6%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 39.6;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                           ed. No. 1.4;
Mismatches 104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 24;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1050;
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738

678

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RESULT 14
AAK67473
ID AAK67473
XX AAK67
XX AAK67
XX AAK67
XX Humar
XX Humar
XX Humar
XX Homo
XX Cytoi
XX Homo
XX WO201
XX O9-Al
   14-AUG-2000
14-AUG-2000
14-AUG-2000
14-AUG-2000
14-AUG-2000
14-AUG-2000
14-AUG-2000
14-AUG-2000
14-AUG-2000
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14-AUG-2000
14-AUG-2000
12-AUG-2000
22-AUG-2000
22-AUG-2000
22-AUG-2000
22-AUG-2000
23-AUG-2000
23-AUG-2000
25-SEP-2000
26-SEP-2000
27-AUG-2000
28-SEP-2000
29-SEP-2000
29-SEP-2000
29-SEP-2000
29-SEP-2000
29-SEP-2000
20-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human; immune; haematopoietic; immune/haematopoietic antigen; cancer; cytostatic; gene therapy; vaccine; metastasis; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-JAN-2001;
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 2000US-0220963

2000US-0220964

2000US-0224519

2000US-0225213

2000US-0225266

2000US-0225267

2000US-0225267

2000US-0225275

2000US-0225275

2000US-0225275

2000US-022575

2000US-022575

2000US-022575

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2000US-0231244

2000US-0231244

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2000US-0231414

2000US-02314114

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2000US-02314114
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2000US-0216647.

2000US-0216880.

2000US-0217487.

2000US-0217496.

2000US-0218290.
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2000US-0180628.
2000US-0184664.
2000US-018350.
2000US-018974.
2000US-0199123.
2000US-0199123.
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2000US-0214886
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    14-SEP-2000
11-SEP-2000
21-SEP-2000
25-SEP-2000
25-SEP-2000
26-SEP-2000
27-SEP-2000
29-SEP-2000
29-SEP-2000
29-SEP-2000
29-SEP-2000
20-OCT-2000
02-OCT-2000
03-NOV-2000
03-NOV-2000
04-NOV-2000
06-NOV-2000
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08-NOV-2000
01-NOV-2000
01-DEC-2000
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14-SEP-2000;
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14-SEP-2000;
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2000US-0237040.
2000US-0239935.
2000US-0239937.
2000US-0239937.
                       2000US-0246526.
2000US-0246527.
2000US-0246532.
2000US-0246610.
2000US-0246611.
2000US-0246611.
2000US-0249207.
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2000US-0236370.
2000US-0236802.
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2000US-0235836.
2000US-0236327.
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2000US-0232398.
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2000US-0232400.
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2000US-0241826.
2000US-0244617.
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05-DEC-2000;
05-DEC-2000;
06-DEC-2000;
08-DEC-2000;
08-DEC-2000;
08-DEC-2000;
08-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          expression by rectifying mutations or deletions in a patient's genome that affect the activity of (I) by expressing inactive proteins or to supplement the patients own production of (I). Additionally, (I) polynucleotides may be used to produce the secreted (I), by inserting the nucleic acids into a host cell and culturing the cell to express the protein. (I) proteins and polynucleotides may be used to prevent, diagnose and treat immune/haematopoietic-related diseases, especially cancers and cancer metastases of haematopoietic antigen genomic to AAK87694 represent human immune/haematopoietic antigen genomic sequences from the present invention. AAK5492 to AAK84550 and AAM82169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     amino acid sequences given in AAM82170 to AAM91921. (I) have cytostatic activity, and can be used in gene therapy and vaccine production. (I) proteins and polynucleotides may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate (I) expression. For example, they may be used to treat disorders associated with decreased
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure; SEQ ID NO 22285; 3071pp + Sequence Listing; English
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               useful for preventing,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nucleic acids encoding human immune/hematopoietic antigen useful for preventing, diagnosing and/or treating cancers
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TACTTAAAAGTGAATAAATGTATACATTTTATTCTTCAAAACAACAGAAAACCTGGGTTA
                                                                                                                                                   AGGCGTGAGCCACCAAACCCAGCCTATAAACAATTGTTCTAATAAAAGAAATGTGAACTA
                                                                                                                                                                                                                             TCTCGAACTCCTGACCTCAGGTGATCCGCCTGCCTCGGCCTCCCAAAGTGCTGGGATTAC
                                                                                                                                                                                                                                                             GGCCTATAAAGTCACAGCAGATAGTCTACCTGCCACATTATTAGAAGTGGTTCCAATGAC
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                                   ATATCATGAAGCCACAGTTAAATTCGTTAAAGTTTATAAATCCACACCTTAACAACGGTGA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 encode the human immune/haematopoietic antigen given in AAM82170 to AAM91921. (I) have cytosta
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RESULT 15
ABL55644/c
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                                                                                                                                                                                                                                  Novel recombinant entomopox virus vector useful for delivering polynucleotide encoding protein to vertebrate cell, comprises polynucleotide encoding protein operably linked with heterologous
                                                                                                                                                                                                                                                                                                                                                                                                                  AmEPV; gene therapy; viral vector; chromosome mapping; gene mapping; genetic deficiency disorder; ds.
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                                                                                                                                                                                                                            promoter
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14-SEP-2000;
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2000US-0662254.
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polypeptides, and

antigen (I) cytostatic

invention are useful for delivering a polynucleotide encoding a protein to a vertebrate cell preferably a mammalian cell, such as a human cell. The vector is introduced into the vertebrate cell by infection in a viral particle, or by transfection, transduction, or injection either in vitro or in vivo. The vector is useful for the delivery and expression of biologically useful proteins in gene therapy protocols, and for delivering large DNA segments for engineering of vertebrate cells. Polynucleotides of the invention have applications in techniques such as their use as insertion sites for foreign genes of interest, hybridisation probes, for chromosome and gene mapping, in PCR technologies, and in the production of sense or antisense nucleic acids. Vectors of the invention provide for stable integration and expression of heterologous DNA in h cells, and are adapted for accepting large heterologous polynucleotide inserts which can be delivered in an infected or transformed cell and expressed in a stable fraction. The current sequence represents a The invention relates to a recombinant entomopox virus (EPV) vector, comprising a polynucleotide encoding a protein operably linked with a heterologous promoter sequence. The invention also concerns methods for providing gene therapy for genetic deficiency disorders. Vectors of the (Amepv). ragment of the of f the genus B entomopoxvirus amsacta moorei host

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Sequence 50000 BP; 20514 A; 4505 C; 4614 G; 20367 Ŧ, 0 other;

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1226 878 1166

998 1286 818 1106

758 1046

밁 á Query Match Best Local 1619 Similarity TATTATGAAAAAATTTATTATATAAAAAAACCATTTTCTATGTATAGCAAATATCATGAA TCTGGTCAAGAAATTCTATTGGGTGCAACAAGATTTCCTGCTAGTCCAGAATATCATGAA 948 3.6%; Score 39.6; Di Pred. No. 6.6; 0; Mismatches 6.6; DB 104; 24; Length 50000; 0 Gaps 1560

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TATCCATCATATGAATATTAAA 1020

Search Job ti	Ф	Ş	DЪ	γQ	DЬ	Qy
Search completed: June 17, 2003, 07:59:16 Job time : 305 secs	1439 AAATTAAAAAAATAATGTTGATTA 1414	1069 AAAGAAGGTAAAAAACGAAAAATGTTAA 1094	1499 AATATAAAAAATTCTTTATTGATATATTTAATAAAATAGCAGATATATTTGAAAATATT 1440	1009 ATGAATATTAAAGTTTTCAGCAACGGCTTAGATGATGTCCCAGCTCTCACTGAAGGTATA 1068	1559 GAAAAAGATATTTATACTATAGATATAAGATATAATCATTATGATGATATTCCTTAAAGAA 1500	949 GCCACAGTTAAATTCGTTAAGTTTATAAATCCACACCTTAACAACGGTGATATCCATCAT 1008

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Post-processing: Minimum Match 0%
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1: /cgn2_6/ptodata/1/ina/5A_COMB.seq:*

2: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*

3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*

4: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*

5: /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*

6: /cgn2_6/ptodata/1/ina/backfiles1.seq:*
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Copyright (c) 1993 - 2003 Compugen Ltd.
  US-08-302-752-2

US-08-992-334-3

US-08-992-334-3

US-09-134-001C-650

US-09-134-001C-461

US-09-136-922A-11

US-09-165-922A-11

US-09-173-053-3

US-09-173-053-3

US-09-18-91-299

US-09-026-482B-1
PCT-US93-10500-1
US-08-772-270A-14
US-08-348-891A-1
US-08-905-817-1
US-09-134-001C-382
US-09-134-001C-2274
US-09-785-299-12
US-08-785-071A-1
US-09-012-872-1
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5171.685 Million cell updates/sec
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ALIGNMENTS	US-09-470-512A-3 US-09-325-932A-26 US-09-301-912A-157 US-09-301-085-157 US-09-301-085-9-157 US-09-435-745-278 US-09-439-313-278 US-09-439-313-278 US-09-352-616A-278 US-09-352-616A-278 US-09-353-147-5 5231168-1 US-09-633-147-5 5231168-1 US-09-633-702B-212 US-09-633-702B-212 US-09-633-702B-213 US-08-776-265-1 US-08-776-265-1 US-08-776-265-315-48 US-09-265-315-48
	Sequence 3, Appli Sequence 157, App Sequence 157, App Sequence 157, App Sequence 278, App Sequence 278, App Sequence 278, App Sequence 278, Appli Sequence 278, Appli Sequence 5, Appli Sequence 5, Appli Sequence 1062, App Sequence 1062, App Sequence 1062, Appli Sequence 1062, Appli Sequence 1064, Appli Sequence 48, Appli Sequence 48, Appli Sequence 48, Appli
	3, Appli 157, App 157, App 157, App 157, App 278,

US-08-961-527-98

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GENERAL INFORMATION:
                                                                                                        TELEPHONE: (301) 309-
TELEFAX: (301) 309-85
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                    COMPUTER: HP Vectra 486.
OPERATING SYSTEM: MSDOS
SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/
                                                                                                                                                                                                                                                                   FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                          REFERENCE/DOCKET NUMBER: PB
TELECOMMUNICATION INFORMATION:
TELEPHONE: (301) 309-8504
                                                                                                                                                                                                                              FILING DATE:
ATTORNEY/AGENT INFORMATION:
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TITLE OF INVENTION: Strep
                                                                                       SEQUENCE CHARACTERISTICS:
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MEDIUM TYPE: Diskett
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                LENGTH: 8654 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
                                                                                                                                                                                            NAME: Brookes, A. Anders REGISTRATION NUMBER: 36,373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ZIP: 20850
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o. 6420135
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Query Match Best Local S Matches 76

Similarity

3.4%;

Score 37.6; DB Pred. No. 1.2; 0; Mismatches

DB 4;

Length 8654;

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: FastSEO for Windows Version CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                            TELECOMMUNICATION INFORMATION: TELEPHONE: 215-994-2488
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REGISTRATION NUMBER: 36
REFERENCE/DOCKET NUMBER:
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                                                                                                                                                                                                                                                                                                                                                 840 base pairs
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4000 Bell Atlantic Tower, 1717 Arch Stre
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Shilling, Lisa K.
Lawlor, Elizabeth
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Pred. No. 1.
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Best Local Similarity
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NAME/KEY:
LOCATION:
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NAME/KEY:
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REGISTRATION NUMBER:
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Gallant, Paul L.
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Pred. No. 3;
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RESULT 4 US-08-992-334-1

Sequence 1, Application US/08992334 Patent No. 5919678

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Best Local Similarity
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APPLICATION NUMBER:
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PRIOR APPLICATION NUMBER: US 08/302,752
APPLICATION NUMBER: US 08/302,752
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COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
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350 West Colorado Boulevard,
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Patent No. 5919678
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Best Local Similarity
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APPLICANT:
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APPLICANT: Gruss,
APPLICANT: Maguin
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INFORMATION FOR SEQ ID NO: 1
SEQUENCE CHARACTERISTICS:
               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
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APPLICATION NUMBER: FR 9:
FILING DATE: 13-MAR-1992
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OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25 (EPO)
CURRENT APPLICATION DATA:
                                                                                                                                                             CORRESPONDENCE ADDRESS:
ADDRESSEE: Christie Parker & Hale, LI
STREET: 350 West Colorado Boulevard,
                                                                                                                                                                                                                    APPLICANT: Maguin, I
TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
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CLASSIFICATION: 435
                                                                                          ZIP:
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                                                                                                       COUNTRY:
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                                                                                                                          STATE: California
                                                                                                                                               CITY:
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                                                                                                       United States
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PatentIn Release #1.0,
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Pred. No. 3;
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Version #1.30
                                                                                                                                                                Suite 500
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CURRENT APPLICATION DATA:

APPLICATION NUMBER: FILING DATE: 17-DE

17-DEC-1997

US/08/992,334

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Best Local Similarity 47.3%;
Matches 107; Conservative
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APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                          08-302-752-2
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NFORMATION FOR SEQ ID NO:
                                                                                                                                                          MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
PRIOR APPLICATION DATA:
PRIOR APPLICATION NIMBER: WO FR/93/00248
                                                                                                                                                                                                                                     NUMBER OF SEQUENCES: 3
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
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LENGTH: 5234 base pairs
                                                                                    PRIOR APPLICATION DATA:
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TELECOMMUNICATION INFORMATION:
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                                                 APPLICATION NUMBER: FR 9 FILING DATE: 13-MAR-1992
                                                                                                         CLASSIFICATION:
                                                                                                                           APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                              TLE OF INVENTION:
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FILING DATE: 24-DEC-1994
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Pred. No. 3.5;
0; Mismatches 119;
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US-08-302-752-2
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Best Local Similarity
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MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Ve.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/992,334
                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/302,752
FILING DATE: 24-DEC-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/FR93/00248
FILING DATE: 12-MAR-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: FR FR92/03034
FILING DATE: 13-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: Prout, D. Bruce
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                                                     REFERENCE/DOCKET NUMBER: C9
TELECOMMUNICATION INFORMATION:
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                                    TELEPHONE:
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                                    (626) 795-9900
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ID NO: 3
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Pred. No. 3
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Mismatches
                                                                                                                                                                                                                                                                                                                                                                                        Version #1.30
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SEQUENCE CHARACTERISTICS:

3: 6722 base pairs nucleic acid

STRANDEDNESS: TOPOLOGY: cir

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                                                                                                                                                                                                MOLECULE TYPE: US-08-302-752-3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence 3, Application US/08302752
Patent No. 6025190
                                                                                                                               Matches 107;
                                                                                                                                                                Query Match
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                                                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 6722 base pairs
                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: FR 9:
FILING DATE: 13-MAR-1992
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: Patentin Release #1.0, Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: NUMBER OF SEQUENCES:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
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                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE
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                               880 TATCGTGCATCTGGTCAAGAAATTCTATTGGGTGCAACAAGATTTCCTGCTAGTCCAGAA 939
                                                                                              820 ATTGAAAGCATTCCTGAAGAAATCAGAAAAGATAATGTTAAAATTGATATTACTTTGTTG 879
                                                                                                                                                Similarity
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AATAGTTCAGTTGCTCATGTTGAGATACTTGATTATATCAAAGGTTCATATGAATATTTG 5278
                                                                 ATTGCACGAAATCCTGTAACAATAGAAAGCGTTAGGAACAAGATTAAGCGAAAATTGGGG
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                                                                                                                               Score 35.6; DB 3;
Pred. No. 3.8;
0; Mismatches 119;
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Pred. No. 3.8;
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US-09-134-001C-461
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; ORGANISM: Staphylococcus epidermidis
US-09-134-001C-650
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US-09-134-001C-461
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CURRENT APPLICATION NUMBER: US/09/134,001C CURRENT FILING DATE: 1998-08-13

PRIOR APPLICATION NUMBER: US 60/064,964

PRIOR FILING DATE: 1997-11-08

PRIOR APPLICATION NUMBER: US 60/055,779
                                                                                                                                                                                                                                                                                                                                            Patent No. 6380370
GENERAL INFORMATION:
APPLICANT: Lynn Dou
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 5674
SEQ ID NO 650
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Patent No. 6380370
                                                                                     NUMBER OF SEQ ID NOS: 5674
SEQ ID NO 461
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 461, Application US/09134001C
                                                                                                                                                                                                                              FILE REFERENCE: GTC-007
CURRENT APPLICATION NUMBER: US/09/134,001C
CURRENT FILING DATE: 1998-08-13
                                                                                                                                                                                                                                                                                                APPLICANT: Lynn Doucette-Stamm et al TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO STAPHYLOCOCCUS TITLE OF INVENTION: EPIDERMIDIS FOR DIAGNOSTICS AND THERAPEUTICS
                                                                                                                                                                                  PRIOR APPLICATION NUMBER: US 60/064,964 PRIOR FILING DATE: 1997-11-08
                                                                                                                                   PRIOR APPLICATION NUMBER: US 60/055,779 PRIOR FILING DATE: 1997-08-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR FILING DATE:
         TYPE: DNA ORGANISM: Staphylococcus epidermidis
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NUCLEIC ACID AND AMINO ACID S
EPIDERMIDIS FOR DIAGNOSTICS
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Pred. No. 2.6;
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US-09-165-922A-11
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US/08/622
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                                                                                                                    Sequence 11, Application US/09165922A Patent No. 6348641 GENERAL INFORMATION:
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Best Local Similarity 45.6%;
Matches 123; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Match 3.1%;
Local Similarity 48.5%;
MOISYADI, ISTEFO
NEUDANE, KABIR R.
TITLE OF INVENTION: PURIFIED PROTEINS,
RECOMBINANT DNA SEQUENCES AND PROCESSES
PRODUCING CAFFEINE FREE BEVERAGES
                                                                                                                                                                                                                                                                                                                                  1098
                                                                                                APPLICANT: STILES,
                                                                                                                                                                                                                                                                                                                                                                                                         1038 CCAGTGAAGTAGTCAATGAAGCATATTCAAGATTAGCATATTCTGCGTTATCCTCATTAC 1097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY: linear MOLECULE TYPE: cDNA to mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                      800
                                                                                                                                                                                                                                                                                                                                                                                                                                                 740
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              703
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96;
                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGAAGATAGTATCCCCGAGGCCTATAAAGTCACAGCAGATAGTCTACCTGCCACATTAT 799
                                                                                                                                                                                                                                                                                                                                  TTGATGCTGATCCTCTTGCCATTGGCGGCCTAACAGGCAAAAACTGTCATGATAAAGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCCTGGGCAAATTCCCTGCAGCAACAGGAACCAATATTATTTTTGGGATGATTTCCATC 1037
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CATGAAAAGCTTTTAAAAGTCTTATGGTGCTGATGATGTTTTGACTATCATGATGCAGGC 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCCAAATTGCGAAGCTTAAAGGTTGCAGAGTCGTTGGTATAGCTGGTGGAGATAAAAA 582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCCAAGTTGCCAAACATATCAATGCTTATACTAAGATTGTAACTGTTGCTTCTAAAAAG 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGCAACATACTCATCCATTATTGATTTGGGGTGGTGCTACAGCAGTGGGTCAACAACTA
                                                                                                                                                                                                                                                                                       AAATTGATATTACTTTGT 877
                                                                                                                                                                                                                                                                                                                                                                    TAGAAGTGGTTCCAATGACCATTGAAAGCATTCCTGAAGAAATCAGAAAAAGATAATGTTA 859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: CDS
LOCATION: 53..1168
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                                                                                                                                                                                                                                                       ÁGÁTACÁATAGÁCTGTAT 1175
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
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                                                                                                  JOHN I
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Pred. No. 3;
0; Mismatches 147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 34.8; DB 3;
Pred. No. 3.3;
0; Mismatches 102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1044;
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US-09-173-053-3
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Best Local Similarity
Matches 96; Conserv
                                                                                                                                                                                                                    Sequence 3, Application US/09173053 Patent No. 6451769
                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                               APPLICANT:
APPLICANT:
APPLICANT:
                                  APPLICANT: HUEBNER, Robert C.
APPLICANT: NORMAN, Jon A.
APPLICANT: LIANG, Xiaowu
APPLICANT: CARNER, Kristin R.
APPLICANT: BARBOUR, Alan G.
APPLICANT: LUKE, Catherine J.
APPLICANT: LUKE, COMPOSITIONS AND METHODS
TITLE OF INVENTION: COMPOSITIONS AND METHODS
    CURRENT APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGTH: 1347 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: CDS
LOCATION: 53..1168
SEQUENCE DESCRIPTION: SEQ ID NO: 11:
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REGISTRATION NUMBER: 34,831
REFERENCE/DOCKET NUMBER: 26
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 02-Oct-1998
CLASSIFICATION: 800
ATTORNEY/AGENT INFORMATION:
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OPERATING SYSTEM: MS-DOS v. 5.1
SOFTWARE: WordPerfect for Windows v.
CURRENT APPLICATION DATA:
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COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette,
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ADDRESSEE: JONES, DA.
STREET: NORTH POINT,
                                                                                                                                                                                                                                                                                                                                                    1158 AGATACAATAGACTGTAT 1175
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  800 TAGAAGTGGTTCCAATGACCATTGAAAGCATTCCTGAAGAAATCAGAAAAGATAATGTTA 859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        740 GCGAAGATAGTATCCCCGAGGCCTATAAAGTCACAGCAGATAGTCTACCTGCCACATTAT 799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      978 TTCCTGGGCAAATTCCCTGCAGCAACAGGAACCAATATTATTTTTGGGATGATTTCCATC 1037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               680 TTATTGAGCAGATCAAATCGAAGTATCCAAACCTGCAACATGTTATTGACGCTGTGGGAA 739
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TELEFAX: (216) 5
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454312-2440.1
ON NUMBER: US/09/173,053
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NT, 901 LAKESIDE AVENUE
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                                             FOR ADMINISTERING BORRELIA DNA
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CURRENT FILING DATE: 1998-10-15
PRIOR APPLICATION NUMBER: 08/663,998
PRIOR FILING DATE: 1996-06-14

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SOFTWARE: PatentIn Ver. 2.1
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FEATURE:

NAME/KEY: misc_feature

NAME/KEY: (6)..(29)
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LOCATION: (1078)...(1085)
OTHER INFORMATION: N stands for A or G or C or
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ORGANISM: Borrelia burgdorferi
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          COMPUTER READABLE FORM:
MEDIDM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                -781-891-209
                                                                                                                                                      CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center,
                                                                                                                                                                                                                         TITLE OF INVENTION:
CURRENT APPLICATION DATA:
                                                                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Match 3.1%;
Local Similarity 47.0%;
                                                                                                    COUNTRY:
                                                                                                                                        CITY: Seattle
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                                                                                                                                                                           I: Fu, Yiry
I: Yu, Chang-En
T: Oshima, Junko
MT: Miligan, John T.
MT: schellenberg, Gerald D.
PINVENTION: GENE AND GENE PRODUCTS RELATED TO
TAVENTION: WERNER'S SYNDROME
209
                                                                                          98104-7092
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                                                                                                                        Washington
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Pred. No. 5.2;
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               Version #1.30
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Search completed: June 17, Job time : 68 secs
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TELEPAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 209:
SEQUENCE CHARACTERISTICS:
LENGTH: 51259 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
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ATTORNEY AGENT INFORMATION:
NAME: No. 6090620tenburg Ph.D., Carol
REGISTRATION NUMBER: 39,317
REFERENCE/DOCKST UNMBER: 240052.419
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622.4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                  / Match 3.1%;
Local Similarity 49.2%;
nes 124; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US/0 FILING DATE: 27-DEC-1996
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TOPOLOGY: linear
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                                                                      14640 GAGTGAATTTTG 14651
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Post-processing: Minimum Match 0%
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                    Score
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1: /cgn2 6/ptodata/1/pubpna/US07 PUBCOMB.seq:*

2: /cgn2-6/ptodata/1/pubpna/PCT NEW PUB.seq:*

3: /cgn2-6/ptodata/1/pubpna/US06 NEW PUB.seq:*

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4: /cgn2-6/ptodata/1/pubpna/US07 NEW PUB.seq:*

5: /cgn2-6/ptodata/1/pubpna/PCTUS PUBCOMB.seq:*

6: /cgn2-6/ptodata/1/pubpna/PCTUS PUBCOMB.seq:*

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) US-10-077-584-3

10 US-09-788-574-620

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Sequence 1, Appli
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Sequence 1620, Ap.
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Sequence 243, App.
Sequence 243, App.
Sequence 2606, App.
Sequence 160, App.
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US-10-149-819-28	US-09-991-936-213	US-09-887-576-601	US-09-938-842A-231	US-09-764-891-9331	US-10-091-572-878	US-09-864-761-5436	US-10-006-780-1	US-09-864-761-4249	US-10-017-754-1408	US-09-849-626-1408	US-09-902-941-1408	US-09-736-457-1408	US-09-800-065-3	US-09-070-927A-842	US-09-790-988-1	US-09-938-842A-3404	US-09-960-352-13631	US-09-864-761-4012	US-09-887-576-812	US-09-864-761-8552	US-10-032-393-7	US-09-815-242-6622	US-09-815-242-3860	US-09-815-242-7144	US-10-329-960-1
Sequence 28, Appl	Sequence 213, App	Seguence 601, App	Sequence 231, App	Sequence 9331, Ap	Sequence 878, App	Sequence 5436, Ap	Sequence 1, Appli	Sequence 4249, Ap	Sequence 1408, Ap	Sequence 1408, Ap	Sequence 1408, Ap	Sequence 1408, Ap	Sequence 3, Appli	Sequence 842, App	Sequence 1, Appli	Sequence 3404, Ap	Sequence 13631, A	Sequence 4012, Ap	Sequence 812, App	Sequence 8552, Ap	Sequence 7, Appli	Sequence 6622, Ap	Sequence 3860, Ap	Sequence 7144, Ap	Sequence 1, Appli

ALIGNMENTS

US-10-081-644-1

Sequence 1, Application US/10081644 Publication No. US20020192782A1

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GENERAL INFORMATION:

APPLICANT: Yamamoto, Hiroaki

APPLICANT: Yamamoto, No. US20020192782A11hiro

APPLICANT: Yamamoto, No. US20020192782A11hiro

TITLE OF INVENTION: NOVEL ENONE REDUCTASES, METHODS FOR

TITLE OF INVENTION: PRODUCING SAME, AND METHODS FOR SELECTIVELY REDUCING A

TITLE OF INVENTION: CARBON-CARBON DOUBLE BOND OF AN ALPHA, BETA-UNSATURATED KETO:

TITLE OF INVENTION: USING THE REDUCTASES

FILE REPERENCE: 06501-100001

CURRENT APPLICATION NUMBER: US/10/081,644

CURRENT APPLICATION NUMBER: US/202-02-21

PRIOR APPLICATION NUMBER: JP 2001-49363

PRIOR FILING DATE: 2001-02-23

NUMBER OF SEQ ID NOS: 29

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 1

LENGTH: 1113

TYPE: DNA

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Best Local Similarity
Matches 1113; Conserv
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Sequence 14, Application US/10081644
Publication No. US20020192782A1
GENERAL INFORMATION:
APPLICANT: Yamamoto, Hiroaki
APPLICANT: Kimoto, No. US200201927
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TITLE OF INVENTION: NOVEL ENONE REDUCTASES, METHODS FOR
TITLE OF INVENTION: PRODUCING SAME, AND METHODS FOR SELECTIVELY REDUCING A
TITLE OF INVENTION: CARBON DOUBLE BOND OF AN ALPHA, BETA-UNSATURATED KETO
TITLE OF INVENTION: USING THE REDUCTASES
FILE REFERENCE: 06501-100001
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: US/10/081,644
CURRENT FILING DATE: 2001-02-02-21
PRIOR APPLICATION NUMBER: JP 2001-49363
PRIOR FILING DATE: 2001-02-23
NUMBER OF SEQ ID NO: 29
SOFTWARE: FRastSEQ for Windows Version 4.0
SEQ ID NO 14
LENGTH: 509
TYPE: DNA
ORGANISM: Kluyveromyces lactis
US-10-081-644-14
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Best Local Similarity 98.4%;
Matches 501; Conservative
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RESULT 3
US-10-081-644-5
(Sequence 5, Application US/10081644
(Sequence 5, Application US20020192782A1
(Publication No. US20020192782A1
(GENERAL INFORMATION: NOVEL ENONE REDUCTASES, METHODS FOR TITLE OF INVENTION: NOVEL ENONE REDUCTASES, METHODS FOR SELECTIVELY REDUCING A TITLE OF INVENTION: CARBON-CARBON DOUBLE BOND OF AN ALPHA, BETA-UNSATURATED TITLE OF INVENTION: USING THE REDUCTASES
(FILE REFERENCE: 06501-100001
(CURRENT APPLICATION NUMBER: US/10/081,644
(CURRENT APPLICATION NUMBER: JP 2001-49363

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NUMBER OF SEQ ID NOS: 29
SOFTWARE: FastSEQ for Windows
SEQ ID NO 5
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-10-081-644-5
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TYPE: DNA
ORGANISM: Saccharomyces
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LOCATION: (1)
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Similarity 58.9%;
58; Conservative
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                                 CCGATAAACAGGATGCTACAATTGTTGAATTAAAAAATTTGACAGAAGAAAACGTCAAAA
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Pred. No. 4.6e-84;
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Publication No. US20020192782A1

GENERAL INFORMATION:

APPLICANT: Yamamoto, Hiroaki
APPLICANT: Yamamoto, No. US20020192782A1ihiro

APPLICANT: Kimoto, No. US20020192782A1ihiro

ITILE OF INVENTION: POUDCING SAME, AND METHODS FOR

TITLE OF INVENTION: POUDCING SAME, AND METHODS FOR SELECTIVELY REDUCING A

TITLE OF INVENTION: CARBON-CARBON DOUBLE BOND OF AN ALPHA, BETA-UNSATURATED KETONE

TITLE DEFENSATE OF INVENTION: USING THE REDUCTASES
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Best Local Similarity
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CURRENT APPLICATION NUMBER: US/10/081,644
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: JP 2001-49363
PRIOR FILING DATE: 2001-02-23
NUMBER OF SEQ ID NOS: 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
NAME/KEY: CDS
LOCATION: (6).
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ORGANISM: Saccharomyces
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Pred. No. 9.6e-84;
0; Mismatches 452;
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APPLICANT: Yamamoto, Hiroaki
APPLICANT: Kimoto, No. US20020192782Alihiro
ITITLE OF INVENTION: NOVEL ENONE REDUCTASES, METHODS FOR
ITITLE OF INVENTION: PRODUCING SAME, AND METHODS FOR SELECT
ITITLE OF INVENTION: CARBON-CARBON DOUBLE BOND OF AN ALPHA,
ITITLE OF INVENTION: USING THE REDUCTASES
FILE REFERENCE: 06501-100001
CURRENT APPLICATION NUMBER: US/10/081,644
CURRENT APPLICATION NUMBER: US/10/081,644
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: US/10/081,644
CURRENT FILING DATE: 2001-02-23
PRIOR FILING DATE: 2001-02-23
PRIOR FILING DATE: 2001-02-23
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SOFTWARE: FastSEQ for Windows Version
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LENGTH: 1122
TYPE: DNA
ORGANISM: Saccharomyces
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NAME/KEY: CDS
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                                                       AATGTTAAAATTGATATTACTTTGTTGTATCGTGCATCTGGTCAAGAAATTCTATTGGGT
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                                                                                              ACCGTTGTCGAATTAACTAATTTGACAGAAGAAAACGTCAAAAAGGAGAATAGGAGGCAA
                                                                                                                                                                      GTCGCGAATCAAAATACGCTTCAACAAGTGTACAAATGTGCGGCCGATAAACAGGATGCT
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Pred. No. 1.9e-80;
0; Mismatches 448
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                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Benson, Bob
REGISTRATION NUMBER: 30,446
REFERENCE/DOCKET NUMBER: PB24
TELECOMMUNICATION INFORMATION:
TELECHONE: (301) 309-8504
TELECAX: (301) 309-8512
INFORMATION FOR SEQ ID NO: 38:
                                                                                                                                                                                                                 Matches 163;
                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             equence 38, Application US/08781986A ablication No. US20030054436A1 GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: Staphylococcus aureus Polynucleotides and Sequences NUMBER OF SEQUENCES: 5255
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM: MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
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OPERATING SYSTEM: MS
SOFTWARE: ASCII Text
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                                                          16018 CATTGCTGATTATACTAATTCAAAATATAATATTGCACCAGATGAACTTAAAACACTTCC 15959
                                                                                                                                  16078 ACAACGTTTTTTAATCTACGTTTATGCACGTGGCACAGGTAAATGGATAAATATGATTAA
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624 AAAGCTTTTAAAGTCTTATGGTGCTGATGATGTCTTTTGACTATCATGATGCAGGCGTTAT 683
                                                                                                                                                                        504 ACATACTCATCCATTATTGATTTGGGGTGGTGCTACAGCAGTGGGTCAACAACTAATCCA
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                                                                                              AGTTGCCAAACATATCAATGCTTATACTAAGATTGTAACTGTTGCTTCTAAAAAGCATGA
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                                                                                                                                                                                                                                                                                                                                 double
                                                                                                                                                                                                             4.1%; Score 45.4; DB 7;
45.4%; Pred. No. 0.6;
htive 0; Mismatches 196;
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                                                                                     SOFTWARE: Annomax Sequence Listing Engine vers. 1.1
SEQ ID NO 20174
LENGTH: 439
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PRIOR
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PRIOR APPLICATION NUMBER: PCT/US01/00666
PRIOR FILING DATE: 2001-01-30
PRIOR APPLICATION NUMBER: PCT/US01/00667
                                                                                                                                                                         NUMBER OF SEQ ID NOS: 49117
                                                                                                                                                                                                PRIOR APPLICATION NUMBER: US PRIOR FILING DATE: 2001-01-29
                                                                                                                                                                                                                                                                                                                                               PRIOR FILING DATE: 2001-01-30
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PRIOR APPLICATION NUMBER: GB 24263.6
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PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: US 09/632,366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: US 60/180,312 PRIOR FILING DATE: 2000-02-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: US 60/234,687
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OTHER INFORMATION: MAP TO AL035419.9
                       ORGANISM: Homo sapiens FEATURE:
                                                                        TYPE:
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APPLICATION NUMBER: PCT/US01/00670
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APPLICATION NUMBER: PCT/US01/00664
                                                                                                                                                                                                                                                 FILING DATE: 2000-06-30
                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 09/608,408
                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: PCT/US01/00661
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Chen, Wensheng
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GENERAL INFORMATION:
APPLICANT: LINDQUIST, SUSAN
APPLICANT: KROBITSCH, SYLVIA
APPLICANT: OUTEIRO, TIAGO F.
ITITLE OF INVENTION: YEAST SCREENS FOR THE TF
FILLE REFERENCE: ARCD. 367US
CURRENT APPLICATION NUMBER: US/10/077,584
CURRENT FILING DATE: 2002-02-15
PRIOR APPLICATION NUMBER: 60/269,157
PRIOR FILING DATE: 2001-02-15
NUMBER: OF SEQ ID NOS: 9
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US-10-077-584-3/c
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Best Local S
Matches 126
                                                                                                   Query Match
Best Local Similarity
Matches 139; Conserv
                                                                                                                                                                                                                                               SOFTWARE: 1
SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 3, Application US/10077584 Publication No. US20030073610A1
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LOCATION: (1)...
                                                                                                                                                                                                         TYPE: DNA
ORGANISM: Homo
                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                  LENGTH: 1236
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INFORMATION:
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AAGGAGGGTACAGCCTTGGTGAAGGTTGAGGCTGTTGCTGGTAACCCCAACTGATTGGAAG
                                                                            GCCGTCATCATTGAAGGTGACAAAGCTGTTGTTAAAACAGATGTCTCAGTTCCAGAATTA
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                                                 TGCTTCCCAAACAGATCCTAAAAATGGTG 304
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Pred. No. 1.4;
0; Mismatches 143;
                                                                                                                 Score 40; I
Pred. No. 2
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HBL100, SIGNAL = 1.1
PLACENTA, SIGNAL = 1.5
ADULT LIVER, SIGNAL = 1.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HEART, SIGNAL = 1.5
BT474, SIGNAL = 1.5
FETAL LIVER, SIGNAL = 1.2
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LUNG, SIGNAL =
HELA, SIGNAL =
                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                     THE TREATMENT OF HUMAN DISEASE
                                                                                                                 DB 9;
2.9;
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                                                                                                                             Length 1236;
                                                                                                   Indels
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RESULT 10
US-09-790-988-1/c
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; ORGANISM: Glycine max
OTHER INFORMATION: Clone ID:
US-09-878-574-1620
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                                                                                                    GENERAL INFORMATION:

APPLICANT: SHIGENOBU, SHUJI

APPLICANT: WATANNABE, HIDEMI

APPLICANT: HATTORI, MASAHIRA

APPLICANT: SAKAKI, YOSHIYUKI
                                                                                                                                                                                                            Sequence 1, Application US/09790988 Patent No. US20020127687A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 15775
SEQ ID NO 1620
LENGTH: 392
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APPLICANT: La Rosa, Thomas J.
APPLICANT: Thompson, Michael D.
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated with
TITLE OF INVENTION: Plants
FILE REFERENCE: 38-21(15401)B.
TITLE OF INVENTION: GENOME DNA OF BACTERIAL FILE REFERENCE: 081356/0159
CURRENT APPLICATION NUMBER: US/09/790,988
CURRENT FILING DATE: 2001-02-23
PRIOR APPLICATION NUMBER: JP2000-107160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/09/878,574
CURRENT FILING DATE: 2001-12-21
PRIOR APPLICATION NUMBER: 09/333,535
PRIOR FILING DATE: 1999-06-14
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                                                                                                                                                                                                                                                                                                                                          223
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                589 ACTAAGATTGTAACTGTTGCTTCTAAAAAGCATGAAAAGCTTTTAAAGTCTTATGGTGCT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                529 GGTGGTGCTACAGCAGTGGGTCAACAACTAATCCAAGTTGCCAAACATATCAATGCTTAT 588
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                                                                                                                                                                                                                                                                                                                                                                               GATGATGTCTTTGACTAT 666
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Pred. No. 3
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Ver. 2.1

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RESULT 12
US-09-788-711A-3/c
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Sequence 14020, Application US/10198846
Publication No. US20030099974A1
GENERAL INFORMATION:
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, SOFTWARE: Patentin Ver.
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                          Matches 84;
                                                                                                                                                                                                                                                                                                                                                                Query Match
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Steinmann, Kathleen
TITLE OF INVENTION: NOVEL GENES, COMPOSITIONS, KITS,
TITLE OF INVENTION: FOR IDENTIFICATION, ASSESSMENT,
TITLE OF INVENTION: THERAPY OF BREAST CANCER
FILE REFERENCE: WRI-049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/10/198,846
CURRENT FILING DATE: 2002-07-18
PRIOR APPLICATION NUMBER: 60/306,220
PRIOR FILING DATE: 2001-07-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS: 14084
SOFTWARE: FastSEQ for Windows Version 4.0
Q ID NO 14020
LENGTH: 7772
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Lillie, James APPLICANT: Xu, Yongyao
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TYPE: DNA
ORGANISM: Buchnera sp
                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                             Local Similarity
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                                                                                                                      CACTGAAGGTATAAAAGAAGGTAAAAACAAAAATGTTAAGTA 1097
                                                                                                                                                              CAATTTCACAGTTATAAATATTTCAATTTACAGCTACACTATAAATTACAGGAAATAA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGAAATCAGAAAAGATAATGTTAAAATTGATATTACTTTGTTGTTATCGTGCATCTGGTC 895
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                                                                            AATTCAAGTAACAGAAAAAGAAGAGGGGGAAAAATAAAAGCA 3285
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48.6%;
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                                                                                                                                                                                                                                                                                                                                           Score 37.2;
Pred. No. 45;
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Pred. No. 4.1e+02;
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RESULT 14 US-09-880-107-3814/c

Sequence 3814, Application US/09880107
Patent No. US20020142981A1
GENERAL INFORMATION:
APPLICANT: Horne, Darci T.
APPLICANT: Vockley, Joseph G.
APPLICANT: Scherf, Uwe

Gene Logic,

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US-09-788-711A-1/c
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                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 4
SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1, Application US/09788711A Patent No. US20020058328A1
GENERAL INFORMATION:
APPLICANT: Tania Tamsin Testa
TITLE OF INVENTION: NOVEL COMPOUNDS
FILE REFERENCE: GP-30225
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APPLICANT: Tania Tamsin Testa
TITLE OF INVENTION: NOVEL COMPOUNDS
FILE REFERENCE: GP-30225
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                                                                                                                                                  Matches
                                                                                                                                                                                   Query Match
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PRIOR FILING DATE: 2000-02-19
NUMBER OF CTO
                                                                                                                                                                    Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION NUMBER: US/09/788,711A
CURRENT FILING DATE: 2001-02-20
                                                                                                                                                                                                                                      TYPE: DNA
ORGANISM: HOMO SAPIENS
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ORGANISM: HOMO SAPIENS
                                                                                                                                                                                                                                                                             LENGTH: 8871
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Local Similarity 58.7%;
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5396 GAGTCACAAGGGTCAGGCAGGCTACAGCCTTGCTCCACGTTGATGCTCT
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                                   71 CAGTTCCAGAATTAAAGGAGGGTACAGCCTTGGTGAAGGTTGAGGCTGT 119
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                                                                      CAGCTGCAGGAATAGCTGTCCCAGTCGTTGCTGCAATAGCTGTTAGCAGGACACGGGTTT
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Pred. No. 55;
0; Mismatches
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SEQ ID NO 3814
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: US 60/237,054
PRIOR FILING DATE: 2000-10-02
NUMBER OF SEQ ID NOS: 3950
                                                                                                                                                                                                                                                                                                       PRIOR FILING DATE: 2000-05-26
                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: US 60/180,312 PRIOR FILING DATE: 2000-02-04
                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Penn, Sharron G. APPLICANT: Rank, David R.
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                                                                                                                                                                                                                                                                                                                                                                                                                                     FILE REFERENCE: Aeomica-X-1
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                                                                                               APPLICATION NUMBER: US 60/236,359
FILING DATE: 2000-09-27
APPLICATION NUMBER: PCT/US01/00666
FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00667
FILING DATE: 2001-01-30
                                                                                                                                                                                                                                           APPLICATION NUMBER: GB 24263.6
                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 09/632,366
                                                                           APPLICATION NUMBER: PCT/US01/00664
                                                                                                                                                                                                                            FILING DATE: 2000-10-04
                                                          FILING DATE: 2001-01-30
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97; Conserv
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Hanzel, Dav.
Then, Wensheng
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NUMBER: PCT/US01/00665
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Pred. No. 3.2e+02;
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OTHER INFORMATION:
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ORGANISM: Homo sapiens
FEATURE:
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APPLICATION NUMBER: US 60/234,687
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APPLICATION NUMBER: PCT/US01/00670
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                              287 CAGATCCTAAAAATGGTGCATTTGCTGAATATGCCAGGGTTTAT
                                                                                                                                                               167 CAGAAGGTTCAATTCTAGGATGTGACATTGCTGGTACAGTTGTCAAACTTGGACCAAATG
                                                                                                                                                                                                                                                              tch 3.3%; al Similarity 47.8%; 107; Conservative
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GTGATGATAATGATGGTGATGCTACTGCTGTTGCCACTGATGAT
                                                                 AGGGTAATAATGGTAATGATGGTGATGGCGATGATGATAATAACGATGATGCTGATG
                                                                                                CTAGTACTGACTTGAAGGTTGGAGATACCGGTTTCGGTTTTGTTCACGGTGCTTCCCCAAA 286
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SSSED IN BONE MARROW, SIGNAL = 1.2

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SSSED IN HELA, SIGNAL = 1.1

SSSED IN BRAIN, SIGNAL = 1.1

SSSED IN HEL100, SIGNAL = 1.1

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Search completed: June 17, 2003, 10:47:53

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ALIGNMENTS

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INITION
T7 end of clone AUDAAODBF10 of library AUDAA from strain CBS 3082
of Saccharomyces kluyveri, genomic survey sequence.

SSION
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AL4061891
IGI:12169887
ORDS
Saccharomyces kluyveri
Saccharomyces kluyveri
Eukaryota; Pungi; Ascomycota; Saccharomycetaes;
Saccharomyces kluyveri
Eukaryota; Pungi; Ascomycota; Saccharomyces.

1 (bases 1 to 1011)
Saccharomycetales; Saccharomycetaeeae; Saccharomycees.
Bolotin-Fukuhara, M., Bon, E., Brottier, P., Casaregola, S.,
Bolotin-Fukuhara, M., Durrens, P., Lepinglé, A., Llorente, B.,
Malpertuy, A., Neiveglise, C., Ozier-Kalogeropoulos, O., Potier, S.,
Saurin, W., Tekaia, F., Toffano-Nicche, C., Wesolowski-Louvel, M.,
Wincker, P. and Weissenbach, J.
Genomic exploration of the hemiascomycetous yeasts: 1. A set of
yeast species for molecular evolution studies
EBS Lett. 487 (1), 3-12 (2000)
EBSCENCE
Commic exploration of the hemiascomycetous yeasts: 1. A set of
gaillardin, C. and Casaregola, S.
Genomic exploration of the hemiascomycetous yeasts: 9.
Saccharomyces kluyveri

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Submitted (07-SEP-2000) Genoscope - Centre National de Sequencage, 2 rue Gaston Cremieux, CP 5706, 91057 EVRY cedex, FRANCE. (E-mail: seqref@genoscope.cns.fr)

This GSS is part of a random genomic sequencing program of thirteen yeast species: Saccharomyces bayanus var. uvarum, Saccharomyces exiguus, Saccharomyces servazzii, Zygosaccharomyces rouxii, Saccharomyces kluyveri, Kluyveromyces thermotolerans, Kluyveromyces lactis var. lactis, Kluyveromyces marxianus var. marxianus, Pichia angusta, Debaryomyces hansenii var. hansenii, Pichia sorbitophila, angusta, Debaryomyces hansenii var. hansenii, Fichia sorbitophila,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Candida tropicalis and Yarrowia lipolytica. Genomic inserts of 3 to 5 kb were prepared and both extremities were sequenced. See keywords for description of this sequence and for the sequence of the other extremity of this insert.
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                                           GATGTCTTTGACTATCATGATGCAGGCGTTATTGAGCAGATCAAAATCGAAGTATCCAAAC 711
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COMMENT

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Submitted (07-SEP-2000) Genoscope - Centre National de Sequencage, 2 rue Gaston Cremieux, CP 5706, 91057 EVRY cedex, FRANCE. (E-mail: seqref@genoscope.cns.fr - Web: www.genoscope.cns.fr)
This GSS is part of a random genomic sequencing program of thirteen yeast species: Saccharomyces bayanus var uvarum, Saccharomyces
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T3 end of clone ATOAA012G10 of library ATOAA from strain CBS
of Saccharomyces servazzii, genomic survey sequence.
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Bolotin-Fukuhara, M., Bon, E., Borttier, P., Casaregola, S.,
de-Montigny, J., Dujon, B., Durrens, P., Lepingle, A., Llorente, B.,
Malpertuy, A., Neuveglise, C., Ozier-Kalogeropoulos, O., Potier, S.
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FEBS Lett. 487 (1), 47-
                                                                                                                                                                                                                                                               Genomic exploration of the hemiascomycetous
                                                                                                                                                                                                                                                                                      Casaregola, S., Lepingle, A., Bon, E., Neuveglise, C., Nguyen, H., Artiguenave, F., Wincker, P. and Gaillardin, C.
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                                                                                                                  Direct Submission
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Wincker, P. and Weissenbach, J.
Genomic exploration of the hemiascomycetous yeasts: 1.
yeast species for molecular evolution studies
FURN TERMS (1), 3-12 (2000)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              angusta, Debaryomyces hansenii var. hansenii, Pichia sorbitophila, Candida tropicalis and Yarrowia lipolytica. Genomic inserts of 3 to 5 kb were prepared and both extremities were sequenced. See keywords for description of this sequence and for the sequence of the other extremity of this insert.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 rue Gaston Cremieux, CP 5706, 91057 EVRY cedex, FRANCE. (E-mai segref@genoscope.cns.fr - Web : www.genoscope.cns.fr)
This GSS is part of a random genomic sequencing program of thirt yeast species: Saccharomyces bayanus var. uvarım, Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T7 end of clone AT0AA012G10 of library AT0AA from strain of Saccharomyces servazzii, genomic survey sequence.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (07-SEP-2000) Genoscope - Centre National de Sequencage, 2 rue Gaston Cremieux, CP 5706, 91057 EVRY cedex, FRANCE. (E-mail :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genomic exploration of the hemiascomycetous yeasts: 7
Saccharomyces servazzii
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/clone="ATOAA012G10"
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Souciet, J.L., Aigle, M., Artiguenave, F., Blandin, G., Bolotin-Fukuhara, M., Bon, E., Brottler, P., Casaregola, S., de-Montign, J., Dujon, B., Durrens, P., Lepingle, A., Llorente, B., Malpertuy, A., Neuveglise, C., Ozier-Kalogeropoulos, O., Potier, S. Saurin, W., Tekaia, F., Toffano-Nioche, C., Wesolowski-Louvel, M., Wincker, P. and Weissenbach, J. Genomic exploration of the hemiascomycetous yeasts: 1. A set of yeast species for molecular evolution studies
                                                                                                                                                                                                                                                                             CNSO6LTC 1072 bp DNA linear T7 end of clone XATOAA001007 of library XATOAA from of Saccharomyces servazzii, genomic survey sequence. AL404614 GI:12166302 GSS.
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Eukaryota; Fungi; Ascomycota; Saccharomycetes;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (07-SEP-2000) Genoscope - Centre National de Sequencage, 2 rue Gaston Cremieux, 65706, 91057 EVRY cedex, FRANCE. (E-mail: seqref@genoscope.cns.fr - Web: www.genoscope.cns.fr)
This GSS is part of a random genomic sequencing program of thirteen yeast species: Saccharomyces bayanus var. uvarum, Saccharomyces
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Artiguenave, F., Wincker, P. and Gaillardin, C.
Genomic exploration of the hemiascomycetous yeasts:
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/clone="XATQAAQ01D07"
/clone_lib="XATQAA"
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/evidence=not_experimental
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GSS.
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Fax: 314 362 7855
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random plasmid subclou
Location/Qualifiers
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Submitted (07-SEP-2000) Genoscope - Centre National de Sequencage, 2 rue Gaston Cremieux, CP 5706, 91057 EVRY cedex, FRANCE. (E-mail: sequefagenoscope.cns.fr - Web: www.genoscope.cns.fr)
This GSS is part of a random genomic sequencing program of thirteen yeast species: Saccharomyces bayanus var. uvarum, Saccharomyces exiguus, Saccharomyces servazzii, Zygosaccharomyces rouxii, Saccharomyces kluyveri, Kluyveromyces thermotolerans, Kluyveromyces
                                                                                                                                                                                                                                                                                                                                                                                                         Saurin, W., Tekaia, F., Toffano-Nioche, C., Weso Wincker, P. and Weissenbach, J. Genomic exploration of the hemiascomycetous yyeast species for molecular evolution studies FEBS Lett. 487 (1), 3-12 (2000)
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T3 end of clone XATOAA002A04 of library XATOAA from
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Souciet, J.L., Aigle, M., Artiguenave, F., Bolotin-Fukuhara, M., Bon, E., Brottier, P.
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                                                                                                                                                                                                                   430 TCGTTGACAACTGCTGGTGTTAGTTTGTGTCATCACTTGGGCTCAAAAATGGAATGGCAC
                                                                                                                                                                                                                                                        146 AAGACTGACGTGGCAACAGGCAAGTTCGACACATGGGAAGCTTGTGCCAGTTTCCCAATG
                                                                                                                                                                                                                                                                                          370 GCTGATGAAATTTCTGAAGGCCCTGTGAAGAACTTCGAATCTGCTGCATCATTGCCAGTT 429
                                                                                                                                                                                                                                                                                                                                                                   256 GGTTTCGGTTTTGTTCACGGTGCTTCCCAAACAGATCCTAAAAATGGTGCATTTGCTGAA 315
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                               244;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         434 bp DNA linear GSS 01-APR-200 474.dhz89f03.sl Saccharomyces unisporus NRRL Y-1556 Saccharomyces unisporus genomic clone 474.dhz89f03.sl, DNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Department of Genetics
Washington University Medical School
Box 8232, 4566 Scott Ave., St. Louis
Tel: 314 362 2735
Fax: 314 362 7855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Comparative DNA sequence Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Surveying Saccharomyces genomes to identify comparative DNA sequence analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 434)
Cliften, P.F., Hillier, L.W., Fulton, L.,
W.R., Waterston, R.H. and Johnston, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes; Saccharomycetales;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Saccharomyces unisporus.
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TCTAAAAAGCATGAAAAGCTTTTAAAGTCTTATGGTGCTGATGATGTCT
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                                    CAATATGCTATTCAATTTGTTAAACAAGTCCATGGGTTTACTAAGATTATTGTTGTTGCC
                                                                  CAACAACTAATCCAAGTTGCCAAACATATCAATGCTTATACTAAGATTGTAACTGTTGCT
                                                                                                            CCAGAAGAGCCACAATATGACCATCCAATCTTAATTTGGGGGTGGTGCCACTGGTGTCGGT
                                                                                                                                             CCATCTACCCCGCAACATACTCATCCATTATTGATTTGGGGTGGTGCTACAGCAGTGGGT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="saccharomyces unisporus"
/strain="NRRL Y-1556 (CBS 398)"
/db xref="taxon:27294"
/clone="474.dhz89f03.sl"
/clone_lib="Saccharomyces unisporus NF
/note="Random genomic sequence"
a 76 c 88 g 137 t
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59.7%;
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Pred. No. 3.2e-24;
0; Mismatches 159;
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Michael Snyder, Dept. of Mol.
Yale University
P.O. Box 208103, New Haven, C
Tel: 203 432 9949
Fax: 203 432 6161
 161
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te of mTn-3xHA/lacZ insertion.
Seq primer: GGCCTTCTTTCTTTGGAAGTAC
Class: transposon-tarma?
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V14B11 mTn-3xHA/lacZ Insertion
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GCCATTGGTGATTACATTTATGGGGTTATTCACGGTGCTTCAGTGAGGTTCCCCCTCAAAC
                               AAGGTTGGAGATACCGGTTTCGGTTTTGTTCACGGTGCTTCCCCAAACAGATCCTAAAAAT 300
                                                                                                GGATGTGACATTGCTGGTACAGTTGTCAAACTTGGACCAAATGCTAGTACTG---ACTTG
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/clone_lib="mTn-3xHA/lacZ Insertion Library"
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64.7%;
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Pred. No. 1.2e-2
0; Mismatches 1
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RESULT 9
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desEtages, S.A., Cheung, K.-H., Sheehan, A., Symoniatis, D., Ji
Umansky, L., Heidtman, M., Nelson, K., Iwasaki, H., Kanada, D.,
Hager, K., Miller, P., Roeder, G.S. and Snyder, M.
Large-Scale Analysis of the Yeast Genome by Transposon Tage
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V74E3 mTn-3xHA/lacZ Insertion Library, strain
cerevisiae genomic 5', DNA sequence.
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te of mTn-3xHA/lacZ insertion.
Seg primer: GGCCTTCTTTCTTTGGAAGTAC
Class: transposon-tagged.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P.O. Box 208103, New Haven,
Tel: 203 432 9949
Fax: 203 432 6161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gene Disruption Unpublished (1999)
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Michael Snyder, Dept.
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                                                                                                                                                                                                                                                                                                                                                                      TCAGTTCCAACCACTCAAAAAGCCGTCATCATTGAAGGTGACAAAGCTGTTGTTAAAACA 63
AAGGTTGGAGATACCGGTTTTCGGTTTTGTTCACGGTGCTTCCCAAACAGATCCTAAAAAAT 300
                                                                        GGCTGTGATGCAGCCGGCCAAATCGTAAAGTTGGGCCCAAATGTTGATGCTGCACGCTTT
                                                                                                                  GGATGTGACATTGCTGGTACAGTTGTCAAACTTGGACCAAATGCTAGTACTG---ACTTG
                                                                                                                                                                                                         GGTAACCCAACTGATTGGAAGCATATTGCTTATAAGATTGGTCCAGAAGGTTCAATTCTA 183
                                                                                                                                                                                                                                                     GACATTCCAATTCCTGAATTAGAAGAAGGATTTGTTCTAATTAAGACTGTCGCCGTTGCC
                                                                                                                                                                                                                                                                                                GATGTCTCAGTTCCAGAATTAAAGGAGGGTACAGCCTTGGTGAAGGTTGAGGCTGTTGCT 123
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                                                                                                                                                               GGTAACCCTACCGATTGGAAACATATTGATTTCAAGATTGGTCCTCAAGGTGCCCTCTTA
                                                                                                                                                                                                                                                                                                                                            TCGATTCCAGAAACCATGAAAGCCGTTGTCATTGAAAATGGCAAGGCTGTAGTCANACAG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /lab_host="E. coli"
/note="Vector: pHSS6-Sal; A yeast genomic DNA library was prepared in pHSS6-Sal; genomic DNA was size-fractionated (DNA of roughly 2-3 kb in length) prior to cloning. This library was subsequently mutagenized with a mTn-3xHA/lacZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           minitransposon containing lacZ, URA3, and tet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /strain="AB972 - trp1 r(0) (S288C background)"
/db_xref="taxon:4932"
/clone_lib="mTn-xHA/lacz Insertion Library, strain
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Pred. No. 2.4e-22;
D; Mismatches 110;
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AB972 Saccharomyces
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Jansen,R.,
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VERSION
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 (bases 1 to 537)
Roemer, T., Coelho, P.S.R., Agarwal, S., Kumar, A., Ross-Macdonald, P., Roemer, T., Coelho, P.S.R., Agarwal, S., Kumar, A., desEtages, S.A., Cheung, K.-H., Sheehan, A., Symoniatis, D., Jansen, R. Umansky, L., Heidtman, M., Nelson, K., Iwasaki, H., Kanada, D., Lugo, R. Hager, K., Miller, P., Roeder, G.S. and Snyder, M. Large-Scale Analysis of the Yeast Genome by Transposon Tagging and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Class: transposon-tagged
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: anuj.kumar@yale.edu
te of mTn-3xHA/lacZ insertion.
Seq primer: GCCTTCTTTCTTTGGAAGTAC
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                                                                                                                                                                                              GATGTCTCAGTTCCAGAATTAAAGGAGGGTACAGCCTTGGTGAAGGTTGAGGCTGTTGCT
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GGCTGTGATGCAGCCGGCCAAATCGTAAAGTTGGGCCCAAATGTTGATGCTGCACGCTTT 176
                                     GGATGTGACATTGCTGGTACAGTTGTCAAACTTGGACCAAATGCTAGTACTG----ACTTG 240
                                                                              GGTAACCATACCGATTGGAAACATATTGATTTCAAGATTGGTCCTCAAGGTGCCCTCTTA
                                                                                                         GGTAACCCAACTGATTGGAAGCATATTGCTTATAAGATTGGTCCAGAAGGTTCAATTCTA 183
                                                                                                                                                                                                                                        TCGATTCCAGAAACCATGAAAGCCGTTGTCATTGAAAATGGCAAGGCTGTAGTCAAACAG 356
                                                                                                                                                                                                                                                                             TCAGTTCCAACCACTCAAAAAGCCGTCATCATTGAAGGTGACAAAGCTGTTGTTAAAACA
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203 432 6161
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Box 208103, New Haven, CT 06520-8103,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      strain="AB972 - trp1 r(0) (S288C background)"
/db xref="taxon:4932"
/clone_lib="mTn-3xHA/lacZ Insertion Library, strain AB972"
/lab_host="E. coli!"
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Pred. No. 3.4e-22;
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RESULT 11
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                203;
                                                                                                                                                                                                   64 GATGTCTCAGTTCCAGAATTAAAGGAGGGTACAGCCTTGGTGAAGGTTGAGGCTGTTGCT 123
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V75D10 mTn-3xHA/lacZ Insertion Library Saccharomyces cerevisiae
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te of mTn-3xHA/lacZ insertion
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Fax: 203 432 6161
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished (1999)
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GGCTGTGATGCAGCCGGCCAAATCGTAAAGTTGGGCCCCAAATGTTGATGCTGCACGCTTT
                                      GGATGTGACATTGCTGGTACAGTTGTCAAACTTGGACCAAATGCTAGTACTG---ACTTG
                                                                                                                                                             GACATTCCAATTCCTGAATTAGAAGAAGGATTTGTTCTAATTAAGACTGTCGCCGTAGCC
                                                                                                                                                                                                                                                 TCGATTCCAGAAACCATGAAAGCCGTTGTCATTGAAAATGGCAAGGCTGTAGTCANACAG
                                                                                                                                                                                                                                                                             TCAGTTCCAACCACTCAAAAAGCCGTCATCATTGAAGGTGACAAAGCTGTTGTTAAAACA 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 529)
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                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="Vector: pHSS6-Sal; A yeast genomic DNA library (lacking mitochondrial DNA) was prepared in pHSS6-Sal; genomic DNA was size-fractionated (DNA of roughly 2-3 kb in length) prior to cloning. This library was subsequently mutagenized with a mTn-3xHA/LacZ minitransposon containing lacZ, URA3, and tet resistance a 117 c 112 g 147 t lothers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:4932"
/clone_lib="mTn-3xHA/lacZ Insertion Library"
/lab_host="E_coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="Saccharomyces cerevisiae'
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                                                                                                                                                                                                                                                                                                                            Score 124; DB 17;
Pred. No. 6.2e-22;
0; Mismatches 111
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CNSO6HG8
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                                                                                                                                                                                                                                                                       angusta, Debaryomyces hansenii var. Candida tropicalis and Yarrowia lipolytica. Genomic inserts of 3 to 5 kb were prepared and both extremities were sequenced. See keywords for description of this sequence and for the sequence of the other extremity of this insert.
                                                                                                                                                                                                                                                                                                                                                          Submitted (07-SEP-2000) Genoscope - Centre National de Sequencage, 2 rue Gaston Cremieux, CP 5706, 91057 EVRY cedex, FRANCE. (E-mail: seqrefégenoscope.cns.fr)
This GSS is part of a random genomic sequencing program of thirteen yeast species: Saccharomyces bayanus var. uvarum, Saccharomyces exiguus, Saccharomyces servazzii, Zygosaccharomyces rouxii, Saccharomyces servazzii, Zygosaccharomyces rouxii, Saccharomyces Kluyveromyces marxianus var. marxianus, Pichia angusta, Debaryomyces hansenii var. hansenii, Pichia sorbitophila, angusta, Debaryomyces hansenii var. hansenii, Pichia sorbitophila, angusta, Debaryomyces hansenii var. hansenii, Pichia sorbitophila,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BOIL, And Durrens, P.
Aigle, M. and Durrens, P.
Aigle, M. and Durrens, P.
Genomic exploration of the hemiascomycetous yeasts:
Saccharomyces bayanus var. uvarum
SEAS Lett. 487 (1), 37-41 (2000)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genomic exploration of the hemiascomycetous yeasts: 1. A set yeast species for molecular evolution studies
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Saccharomycetales; Saccharomycetaceae; Saccharomyces
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1,E., Neuveglise,C.
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similarity to C.carbonum toxD gene ]

putative frameshift(s)"
/evidence=not_experimental
<523...944
                                                                                                               /note="end : T7"
                                                                                                                                 /db_xref="taxon:4931"
/clone="AS0AA012C02"
/clone_lib="AS0AA"
                                                                                                                                                                                                               /strain="CLIB 533"
                                                                                                                                                                                                                                 organism="Saccharomyces"
                                                                             /note="similar to Saccharomyces cerevisiae ORF YNL134c
                                                                                                                                                                                         /variety="uvarum"
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AQ873736
V74E1 mTn-3xHA/lacZ Insertion Library, strain AB972 Saccharomyces cerevisiae genomic 5', DNA sequence.
                                                                                                                                                                                                   Ross-Macdonald, P., Roemer, T., Coelho, P.S.R., Agarwal, S., Kumar, A., desEtages, S.A., Cheung, K.-H., Sheehan, A., Symoniatis, D., Jansen, R., Umansky, L., Heidtman, M., Nelson, K., Iwasaki, H., Kanada, D., Lugo, R., Hager, K., Miller, P., Roeder, G.S. and Snyder, M.

Large-Scale Analysis of the Yeast Genome by Transposon Tagging and
                                                                                                                                                                                                                                                                                                                                                     Saccharomyces cerevisiae

Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                                                                                                                                                    Gene Disruption 
Unpublished (1999)
Tel: 203 432 9949
Fax: 203 432 6161
                                                                             Yale University
                                                                                                   Contact: Kumar A
Michael Snyder, Dept.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  baker's yeast.
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                                              Box 208103, New
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similar to Saccharomyces cerevisiae ORF YLR460c
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similarity to C.carbonum toxD gene ]
1 putative frameshift(s)
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Pred. No. 1.5e-20;
1; Mismatches 161
                                                                                                     of Mol.
                                                 G
                                                                                                     Cell. and Dev.
                                                 06520-8103, USA
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anuj.kumar@yale.edu

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EST104002 S. cerevisiae strain X2180-1A
cDNA 5' end, mRNA sequence.
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                                                         Contact: Weinstock, K. and Venter, J.C. The Institute for Genomic Research 932 Clopper Rd, Gaithersburg, MD 2087 Tel: 3018699056
                                                                                                                  Saccharomyces cerevisiae 
Unpublished (1995)
                                                                                                                                                Weinstock, K.
                                                                                                                                                              Eukaryota; Fungi; Ascomycota; Saccharor
Saccharomycetales; Saccharomycetaceae;
1 (bases 1 to 337)
                                                                                                                                                                                                       Saccharomyces cerevisiae
                                                                                                                                                                                                                                                    T38505.1 GI:622322
                                                                                                                                                                                                                        baker's yeast.
Email: tdbinfo@tdb.tigr.org
For clone availability please
(tdbinfo@tdb.tigr.org)
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/strain="AB972 - trp1 r(0) ($288C background)"
/db xref="taxon:4932"
/clone_lib="mTn-3xHA/lacZ Insertion Library, strain AB972"
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                                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 540)
Cliften,P.F., Hillier,L.W., Fulton, W.R., Waterston,R.H. and Johnston, Surveying Saccharomyces genomes to comparative DNA sequence analysis
                                                                                                                                                                                                        Department of Genetics
Washington University Medical School
Washington 4566 Scott Ave., St. Louis
Tel: 314 362 2735
Fax: 314 362 7855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Saccharomyces castellii
Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AZ926593 540 bp DNA linear GSS 01-APR-200 476.dis09b12.s1 Saccharomyces castellii NRRL Y-12630 Saccharomyces castellii genomic clone 476.dis09b12.s1, DNA sequence.
                                                                                                                                    Email: mj@genetics.wustl.edu
Class: random plasmid subclone.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                 Unpublished (2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSS
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/organism="Saccharomyces castellii"
/strain="WRRL Y-12630" (CBS 4309)"
/db_xref="taxon:27288"
/clone="476.dis09b12.s1"
/clone_lib="Saccharomyces castellii NRRL Y-12630"
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/note="Vector: pBluescript SK-; Site_1: Ec
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ORIGIN
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                                                                                                                                                                      1068 AAAAGAAGGTAAAAAACAAAAATGTTAAGTATGTTGCCA 1105
                                                                                                                                                                                                                                                                                                 1008 TATGAATATTAAAGTTTTCAGCAACGGCTTAGATGATGATGCCCI.GCTCTCACTGAAGGTAT 1067
                                                                                                                           259 TAAGAACAATAGAAATTCTGGGGAAAAATTAGTTGCCA 296
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                                                                                                                                                                                                                                                                                                                                                                                                                   948 AGCCACAGTTAAATTCGTTAAGTTTATAAATCCACACCCTTAACAACGGTGATATCCATCA 1007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   888 ATCTGGTCAAGAAATTCTATTGGGTGCAACAAGATTTCCTGCTAGTCCAGAATATCATGA 947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19 CATTAAAGAGGAAGACAGAAGATCTAACGTCAAGATCACCGGTACCTTGTTGTATTTATC 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     79 AGGTGGTCATGACGTTCCTTTCGGTTCAATGACTTTACCAGCTTCTCAAGAGTATAGAGA 138
                                                                                                                                                                                                                                                                                                                                                                            AGCCACTATTAAAGCTGTTAAATTTGTTACTCCAAAGATCTTGAATGGTGAAATTCATCA 198
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